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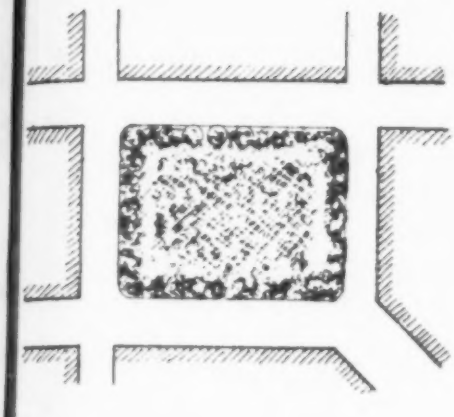

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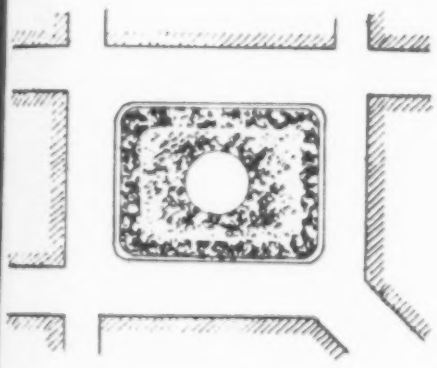

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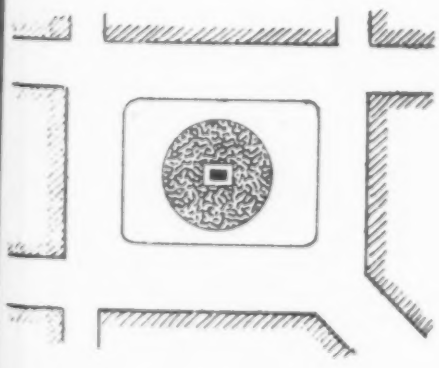


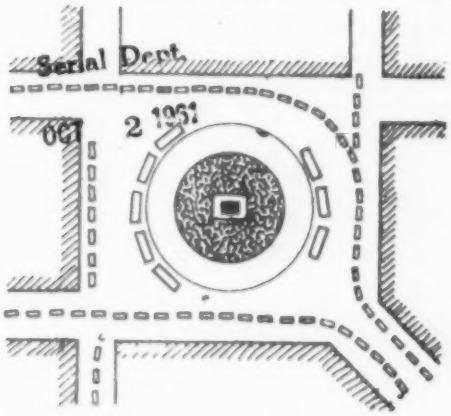
c. Twenty years ago

EKISTICS

ABSTRACTS ON THE PROBLEMS AND SCIENCE OF HUMAN SETTLEMENTS

ΟΙΚΙΣΤΙΚΗ

NOVEMBER 1960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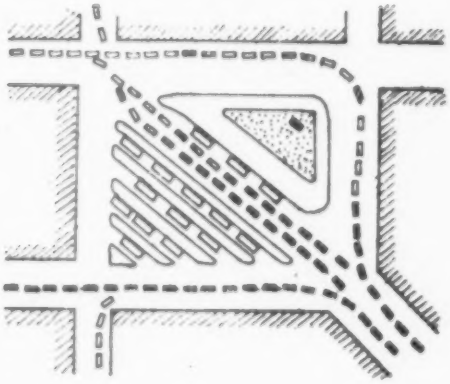
d. Ten years ago



e. And now

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The Editors have felt that many of our readers would like to have the opportunity to comment on points and opinions expressed in the journal EKISTICS or in the general field of Ekistics as such.

We would like to announce that correspondence of this kind will be welcome and will be published in EKISTICS. If you have something to discuss relating to Ekistics in general or to a problem arising from the editorial or other original articles contained in EKISTICS, the opportunity is available to do so.

Unfortunately, we cannot publish correspondence relating to abstracted material because of the indirect nature of the views expressed.

Correspondence should be addressed to the Production Editor, J.C. Piperoglou, 24 Strat. Syndesmou Street, Athens, Greece.

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E K I S T I C S

ABSTRACTS

of

THE PROBLEMS AND SCIENCE OF HUMAN SETTLEMENTS

Published By

DOXIADIS ASSOCIATES
Consulting Engineers
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All enquiries regarding the contents of EKISTICS to:
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NOTE: The figures below each title refer to the Universal Decimal Classification.

EDITORIAL

Most articles this month are related to the changes occurring in human settlements through time. Three such types of change are discussed: time and city plans, time and technology, time and the people. Others which will include changes in cultural aspirations and economic change will certainly come up in the United Nations program for low-cost housing and related community facilities in 1961-1962 which leads off this issue.

TIME AND CITY PLANS

In his address to the National Association of Housing and Redevelopment Officials in the USA, Dr. Doxiadis developed the concept of 'Dynapolis' --the dynamic city moving physically in time and space--and the urban sectors where man lives separated from his car: islands of habitation penetrated by wharfs where the cars are moored. He points out how the pattern of times past has become overwhelmed and nullified by the events of our era: the population explosion and the supremacy of the car. But he does not suggest we lay all the blame on former generations and endeavour to clean the slate and start anew. Though certain outworn buildings, indeed areas, may have to be demolished in the name of the common good, Doxiadis affirms 'we should not make demolition a target and a policy'.

The remnant of an early plan can, of itself, bring a valuable sense of historic continuity to the development of a city. Indeed, as Professor Lewis points out, it is often the very absence of any apparent logic, in the modern sense, of the location of such historic structures which can bring us in touch with this link with the past. He does not advocate preserving everthing, but presents a reasoned system of selection and action.

History is also the theme of Professor Reps' article, which gives a short account of the origins of the notion of the green belt: of the notion of encircling towns with a band of open land, held open in perpetuity.

The Redevelopment of two ancient but highly active cities, Hamburg and London, occupy two more articles. Each city has adopted very similar general principles, some of which can be seen to be in conflict with the views expressed by Dr. Doxiadis: that is to say, there is no sign that they are not building up for themselves greater complications in the future. The basic principle is a band of high population density around the city centre (an area sometimes now called 'the middle city'), a green belt and a series of satellite suburban towns intended to concentrate 'suburban sprawl'. Both discuss their units of redevelopment in the 'middle city,' Hamburg suggesting (astonishingly) units of 6-10,000, London units of a size to 'foster the development of local loyalties associated with the different parts of London.' These units are nearer to the 'urban sectors' described by Doxiadis and

have a population never less than 30,000 and rising to 100,000 or so. One revolutionary factor of the London scheme is their encouragement to industry to move outside their area in order to keep the population down. This is of course only practicable under a system of levying local taxes which does not (as in the USA and some other countries) rely upon industrial taxes to pay most of the costs of public facilities, such as schools, water supply, etc.

In August a popular American monthly journal devoted its entire issue to the problem of land acquisition for housing purposes, listing five main reasons for the 'seeming shortage in the midst of plenty' of building land in the United States: Speculation, Time, Overzoning, Fragmentation, Misinformation. We have reproduced five pages, or parts of pages, from this issue. Two of them are devoted to the Australian and New Zealand system of site-value taxation, rather than taxation of the buildings on the land. This system which has had good results in these countries was actually advocated in America by the National Resources Committee in 1937. Two more pages show a prize-winning project for 'micro-neighbourhoods' which turn out to be almost identical with what Doxiadis Associates term Class I Communities. The final page is a project by Victor Gruen for a new town, making very full use of the natural features of a site near Los Angeles.

TIME AND TECHNOLOGY

The technological changes that most greatly affect Ekistics are the changes in transportation and construction. With the increasing complications and speed of movement, the role of the transportation engineer is growing rapidly in importance. We abstract from a report prepared by the American Institute of Planners together with the Institute of Traffic Engineers outlining the division of responsibilities between these two professions.

Road design is not, however, merely the outcome of statistics, as can be seen in the successive stages of the road plan for the small town of Cumbernauld in Britain.

The complaint is frequently heard that the traffic engineers design roads which assist more and more cars to pour into the cities, but that they accept no responsibility for the end result, which are the nightmare-like traffic jams in the narrow streets of the city centres. Michael Brawne makes a plea for a more positive and imaginative acceptance of the multi-storey parking garage, which should, of course, terminate every exit from high-speed traffic routes into the inner city.

T. W. Scott makes a very practical contribution to the problem of cost reduction in the construction of small dwellings. He lays the greatest possible emphasis upon simplicity of plan, but concludes that the greatest possibility for saving is through the use (or lack of use) of finishes rather than the cutting of area of the dwelling. He also suggests that greater emphasis should be laid on self-help in the finishing rather than the primary construction of houses.

Abstracted from "General Review of the Development and Co-ordination of the Economic, Social and Human Rights Programmes and Activities of the United Nations and the Specialized Agencies as a Whole"
United Nations Secretary General, 20 May 1960

CONCERTED INTERNATIONAL ACTION IN THE FIELD OF HOUSING AND RELATED COMMUNITY FACILITIES

1. The Long-Range Programme of Concerted International Action in the Field of Housing and Related Community Facilities was endorsed by the Social Commission (at its twelfth session) and the Economic and Social Council (at its twenty-eighth session) during 1959. The programme and the methods proposed for its execution are the result of consultations between the United Nations, the International Labour Organisation (ILO), the Food and Agriculture Organization (FAO), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Health Organization (WHO) meeting as an inter-Agency Working Party of the Administrative Committee on Co-ordination. The initial programme covers the period 1961-65 with the preparatory work being undertaken during 1959-60. This arrangement has enabled the policy-making bodies of the organizations concerned to complete the necessary administrative and budgetary actions for the programme to start in 1961.

2. Directions and Priorities. During its first phase (1961-62), the long-range programme emphasizes fact-finding surveys, planning and programming methods and pilot and demonstration projects to be undertaken by the participating organizations jointly and in cooperation with interested Governments. High priority is being given in this connection to evaluating practical experiences in self-help housing. Specific arrangements are being completed for the organization of a mission to survey self-help housing methods and practices in South-east Asia as the first joint project within the long-range programme to be undertaken in 1961.

3. The long-range programme in the second phase (after 1962), however, will emphasize the education of the public and the training of required personnel so that the experience gained in the first phase can be more generally applied. For the time being, training could be continued in the special fields of interest of the agencies concerned, but by 1963 attempts should be made to plan and develop more joint projects related to training and education.

ANNEX - EXTENSION OF LOW-COST HOUSING AND RELATED COMMUNITY FACILITIES

Long-range programme of concerted international action in the field of housing and related community facilities for 1961-62

4. Area 1. Planning, organization and administration of programmes for low-cost housing and community facilities:

a. Seminar on statistics as an aid for the programming of housing, building and planning services (1962). The Seminar would be organized under the joint sponsorship of ECLA, the Plan American Union and the Inter-American Statistical Institute. The UN Statistical Office, in co-operation with the Housing, Building and Planning Branch would also participate in the implementation of this project. The Seminar would be held at the Headquarters of the Inter-American Housing and Planning Centre (CINVA) in Bogota, Colombia. The participants would come from the Ministries of Housing, Labour, Health, Education, etc., of the Latin American countries.

b. Seminar on the preparation of housing surveys and housing programmes (1961). This Seminar will be sponsored by the UN-ECE and ILO and held in Yugoslavia for participants from European countries in process of industrialization.

c. Group fellowships and workshops on housing programming and administration (1962). A group fellowship project for suitable candidates from Africa and Asia and the Far East would be organized in co-operation with ECA, ECAFE and ECE. The major aspects of study and observation would include: housing programming methods; legislative aspects, policy formulation with respect to the place of housing in general development; financing of housing and building programmes; organizational and public administration aspects; and training of personnel for the planning, execution and management of housing programmes.

d. Promotion of scientific and technological research. The participating agencies include the UN, CIB, FAO, UNESCO, and WHO.

5. Area II. Mobilization of individual and group efforts for extending low-cost housing:

a. Mission to survey and evaluate self-help housing methods and practices in South-East Asia (1961). The Mission will undertake a comprehensive fact-finding analysis in India, Indonesia, the Philippines, Northern Japan, the Republic of Viet-Nam, and Thailand of the application of self-help, mutual aid and other methods of co-operation in rural and urban housing with particular attention to techniques used and problems and difficulties encountered in the execution of such projects.

b. African self-help housing survey (1960-61). This project calls for a survey and evaluation of self-help, mutual aid and other co-operative methods in housing, with particular reference to techniques used and problems and difficulties encountered; and the role of self-help housing, mutual aid and co-operation in economic, social and cultural development.

c. Workshop in the extension of self-help housing and community facilities within community development programmes (1961). The Workshop is intended to bring together African housing technicians and community development administrators to study methods of self-help used in Africa and other regions of the world, to come forward with suggestions to Member Governments and to advise ECA how it could best provide assistance in this field.

d. Study of the applicability of community development techniques to urban areas in Africa (1962). This project is to be carried out by (1) undertaking two community development pilot projects in urban areas of Africa to study methods of dealing with housing and planning problems as well as the economic and social services problems of rapidly expanding urban areas and (2) by simultaneously undertaking study and research with a view to minimizing the social disruption caused by urban development problems. This project will be closely related to (e) below.

e. Pilot and demonstration project in self-help housing in Asia and Latin America (1962). Pilot and demonstration projects would be undertaken in close co-operation with the national and local governments concerned and with national and regional housing centres in order (1) to obtain more reliable knowledge and experience of the applicability of self-help techniques in urban and rural areas for the improvement of housing conditions; and (2) to demonstrate the feasibility of more desirable rural resettlement programmes and the possibility of resettling urban squatters in better surroundings.

6. Area III. Provision of community facilities:

a. Seminar on the provision of community facilities in relation to housing (1962). This Seminar will be organized under the joint sponsorship of the UN, ECAFE and WHO (SEARO) at New Delhi, India, for Asian participants. The Seminar would deal with economic and technical problems involved in the provision of protected water supply, excreta and sewage disposal, drainage, roads, electricity, etc., in relation to low-cost housing.

b. Group of Experts on Metropolitan Planning (1961). This Group of Experts will be convened in a European country to consider suitable approaches to the problems of metropolitan planning which would assist Governments in formulating policies to deal with them, including slum clearance, urban renewal, and development of neighbourhood units endowed with essential services and facilities.

c. Seminar on hygiene and sanitation in relation to housing in Africa (1961). In particular, the role of health agencies in the planning, execution and administration of housing programmes and the training of health and housing personnel will be considered.

d. School building research centre for the Asian Region (1961). The Centre, which is to be established about August 1961, will include three experts, two technicians and some administrative personnel provided by UNESCO. As now planned the Centre will be located by an existing Department of Town Planning in the Bandung Institute of Technology, in conjunction with the UN Regional Housing Centre in Bandung, Indonesia. The functions of the Centre will be:

(1) to promote and co-ordinate research in school building plans suitable for the region;
(2) to prepare a set of standardized school building plans suitable for the region:
(3) to carry out research in the technique of school building construction, using materials and the type of labour available in the countries of the region, and to disseminate results obtained;
(4) to study and initiate research in the manufacture of prefabricated building components and to disseminate information about the manufacture of such components;
(5) to collect information about research carried out in planning, design construction and equipment of school buildings in the various parts of the world, for dissemination in the countries of the region; and
(6) from 1963 to train officers of the countries in the region to help improve or set up similar school building centres at the national level.

e. Handbook on school building (1961). It is to be prepared and published in 1961 for the use of Latin American educational specialists, in a series of publications entitled "Problems of education in Latin America."

7. Area IV. Increasing the productivity and capacity of the building industry:

   a. Workship on the utilization of bamboo and secondary species of timber for low-cost housing (1962). The Workshop would be organized under the joint sponsorship of the UN, ECAFE and FAO during the second half of 1962 at the Regional Housing Centre in Bandung, Indonesia, for Asian participants.

   b. Seminar on modular co-ordination and standardization in building (1961). It is proposed to organize this Seminar for countries in Central America, under the sponsorship of ECLA, in co-operation with the Central American Institute for Technological and Industrial Studies (ICAITI) and CINVA.

8. Area V. Education and training:

   a. Group of experts on housing management and tenant education (1961). It is proposed to convene late in 1961 a group of experts representing the regions and areas where activities in this field have been undertaken, for the interested countries, and it is hoped that this would be an inter-regional project with the United States of America as the host country.

   b. Middle East Technical University (1961-65). The Middle East Technical University (METU) was started in 1956 as a School of Architecture and City and Regional Planning in Ankara, Turkey, and is now covering all major technical and engineering fields. The School of Architecture and City and Regional Planning has a five-year course and will establish within its organization a research institute for modernization of construction methods and materials, and an institute for housing, regional, city and village planning.

   c. Teheran Polytechnic (1961-62). The Special Fund has asked UNESCO to act as Executing Agency for the development of the Teheran Polytechnic in Teheran, Iran. The purpose of the project is to establish the Polytechnica, which will include, among other departments and institutes, an Institute of Building Construction.

Abstracted from a Speech delivered at The Fifth Working Conference on Urban Renewal, NAHRO at Chapel Hill, North Carolina, USA, March 21, 1960.

THE DEATH OF OUR CITIES

Dr. C. A. Doxiadis

1. When I was a six-year old child and escaping from home, I would go down to the square in front of our house which was full of pine trees; I used to play there undisturbed with my friends. When I was sixteen, I saw the first gangs of workmen coming to cut down 50 per cent of the trees of the square, in order to open up more space for streets and cars. When I was 26, I saw another gang paving still more street area all around the square, putting a monument in the middle of it for a statesman and cutting down the last trees. When I was 36, I could only see the monument of the statesman as a traffic policeman in a sea of cars. When I was 46, I saw the monument taken away, a wide street cutting through the square in the middle, and everything else paved as a parking place (see cover).

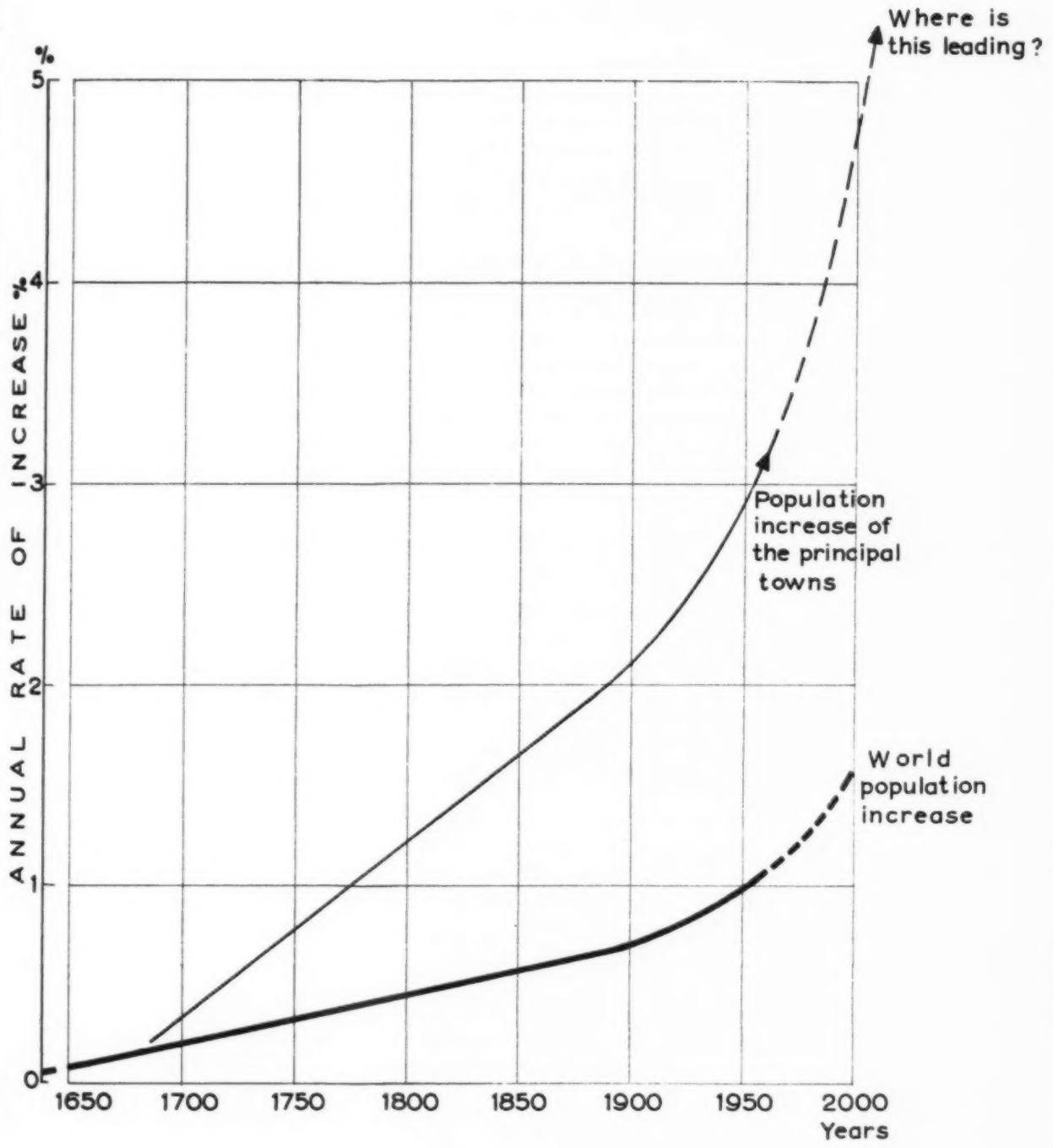
2. During these years the small 2 and 3 storey houses around the square were replaced by tall multi-storey buildings, and today the square has nothing at all which would allow me to call it my square: this square where I grew up, which I considered a part of my home. When I pass through it I feel like a displaced person, and this is what most urban dwellers feel in cities all over the world.

3. I have not seen a city where the change over the last forty years has created an amelioration of conditions. Why? Because three big events have overtaken us.

4. (1) An unprecedented increase of population all over the world. It took humanity thousands of years to reach the point it attained at the beginning of this century: it has taken only 60 years to leap forward and double that population. And this increase has become mainly concentrated in the large cities.

5. (2) The second big phenomenon of our century is a gradual socialization which takes place irrespective of political systems. Now there is no municipality anywhere in the world which dares to think of supplying water only to the privileged classes or to pave the streets of only some neighbourhoods. Everywhere the governments are thinking in terms of public housing, or other schemes which are meant for the whole population.

6. (3) And then we have the third factor, the machine. The machine has entered into our lives. The cars have taken over our cities. In the beginning they took over only the central part of our streets. Now they have taken over all the streets and pushed on into the buildings. This has had many effects. The unit of our cities in the past was man; now the unit is the car. Even when idle, it provides the basic unit of scale for our cities because it covers a lot of space.


Where is this leading?
%
5
4
3
2
1
0
ANNUAL RATE OF INCREASE %
Population increase of the principal towns
World population increase
1650
1700
1750
1800
1850
1900
1950
2000
Years

7. This unit has changed in three ways. Man is small: the car is big. Man is soft: the car is hard. Man moves at three miles an hour: the car moves at a hundred miles an hour. This makes everybody very unhappy.

8. In England they told me they are doomed to cross Glasgow at six miles an hour and London at eleven to twelve miles an hour. But the cars are meant for a hundred miles an hour. If we talk to economists, they tell us that cars are greatly under-employed and this is the most uneconomic thing we can do. We create machines which cannot run. We get nervous when we sit at the wheel: we get as nervous as the pedestrians. We cannot walk freely any more and we cannot drive freely: we are not free persons in our cities. We are completely under the control of the machine, which we created to be our slave. The situation has been reversed: we are the slaves.

9. The average city throughout the world increases in population by some 3.4 per cent per year. Socialization means changes of the order of 3 to 6 per cent, on the basis of cities I know. Income increases by another 2 to 8 per cent. If you add to these all other forces of urbanization, you will discover that urban areas are changing at the rate of 12 to 30 per cent per year. It is wrong to think only of the increase of population. We have to think of the increase of our whole subject, and these are the figures for the average city in the world. As we move at present we cannot catch up with developments.

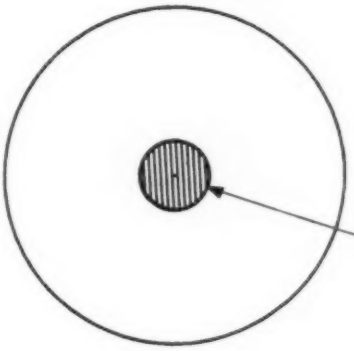
10. This is our problem, This is why we are all talking about this problem. This is why we are unable to face the situation. Never before has humanity had to face such a difficult situation in urban development. And we are not prepared for it. We don't have the machinery, the administration, the legislation, the people. We are few and we are inexperienced in the difficult situation we have to face.

11. What is the greatest characteristic of this situation? Our cities have now acquired a fourth dimension: the dimension of time. Changes, the continuous changes, have become much more important than anything else.

12. In my city, in Athens, every hour we have an increase of nine dwellings and two thousand square feet of roads. This happens every hour of our day. So to think of the future of Athens we have to reckon how many buildings will be added and how much the surface of the streets will be increased. The important thing is to know how different Athens is going to be at the certain time for which we are making calculations.

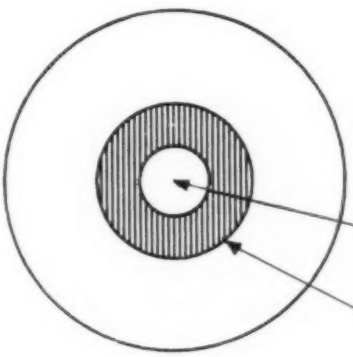
13. For many thousands of years our cities were static. Then came the era when the city walls crumbled and the cities spread out. This is the big change we have to reckon with. And now we cannot follow the spread of the cities.

14. Recently the taxation department of the city of Tokyo decided the only way to follow the spread the new buildings built every year was by the use of airplanes and air photos. There was no other technique to catch up with the growth.



a_THE EXISTING CITY

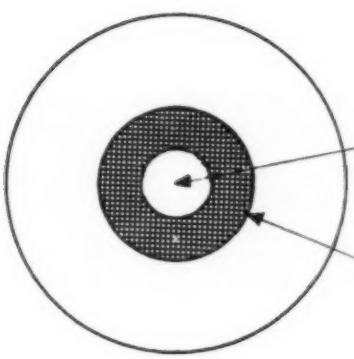
blighted area



b_ DEMOLITION AND RECONSTRUCTION WITH AN INCREASED DENSITY

Reconstructed area at higher density.

This area is going to suffer from traffic and other problems.



c_ DEMOLITION AND RECONSTRUCTION WITH SAME DENSITY AS BEFORE

Reconstructed area at same density

This area is going to suffer from the addition of the overflowing functions.

15. Of all problems of the growing city what has happened to the heart has been the worst. Because the heart has to grow within the body of the city. Where we find the narrowest streets in the city, we need the largest streets. Where we find the smallest plots in the city, we need the largest for new business buildings. Where we find the highest land values, we most need to expropriate land. We face a very difficult problem indeed.

16. All our growing cities are already condemned to death with very few years, unless we reverse the process: unless we understand that our cities cannot grow anymore within themselves. It is impossible to let this situation go on. It leads into an impasse; it means that we move into a vicious circle. Let us assume that we have the ability and the money to start schemes in areas A and B, which have already been blighted by the pressure of the center to expand within the residential areas of the past. The moment we have finished these new schemes in areas A and B, area C will develop the same problems because by then the city will be larger and the center will need a much larger space. There is no way out, if we continue to let our cities grow as they are growing. If we think in terms of urban renewal alone, then there is no doubt at all that we are going to have continuous never-ending difficulties.

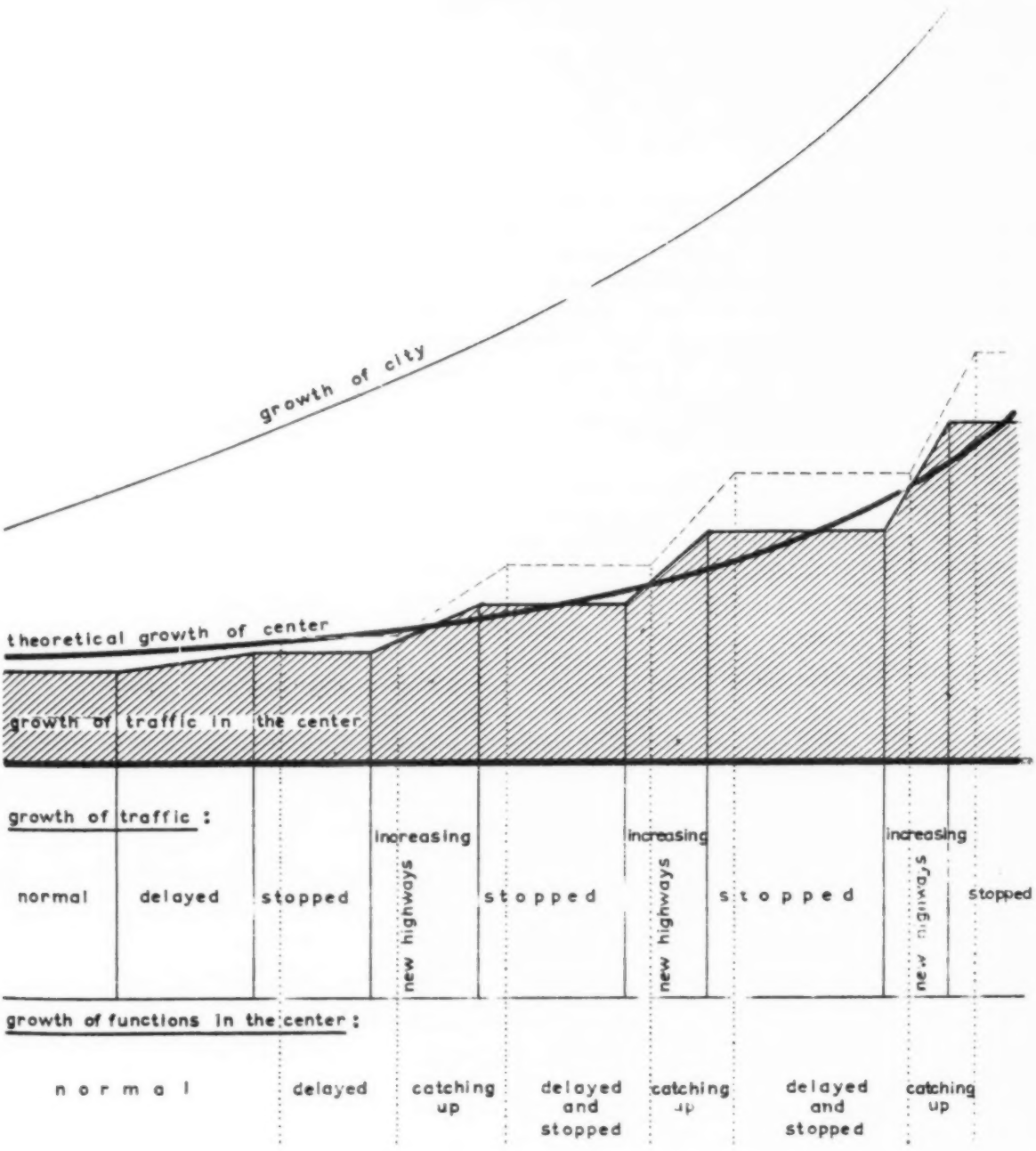
17. To this type of problem we have now to add another due to the traffic situation. What we usually do in order to relieve a center from its traffic pressures is to try to open new highways. We proceed as surgeons and cut through the congested areas of the city in order to facilitate the flow of traffic to and from the center. Well, when we facilitate traffic we also facilitate the growth of the heart of the city: more functions, higher density, more traffic. We need new highways to facilitate people to come to the new functions. If we open more new highways, we demolish more buildings, and we create for a moment relieved conditions. This moment (a moment in human minds, but years in the mind of a city) is used by someone to introduce new functions.

18. There is no way out. If we use a computer, we'll be led to the same conclusion: that the process of opening highways to the hearts of the cities leads to the elimination of the heart of the city.

19. But now we have a new weapon in the U.S.A.: urban renewal. Let us not believe that we have a small weapon in our hands; it is a very big one if we use it properly. Urban renewal was always happening. It is an age-old solution, but it was always in the hands of private people who, when the time came, replaced old houses by new ones--one by one. As long as the city was static, with the same population and the same traffic, this was quite a normal process. The city could always respond to its needs. But now that the city is growing so fast, now that the city is four dimensional, this slow process in the hands of private people doesn't work anymore. Private people cannot catch up with such rapid developments. The government has had to devise new means and came to the urban renewal conception.

PHASES OF GROWTH OF CENTER

Relationship between growth of traffic and functions



20. How can we now use this weapon? To say that we are going to save the situation by urban renewal alone is not realistic. This could only succeed with the static cities of the past. In order to be effective urban renewal has to be used with proper strategy and tactics in order to defeat the situation created by the fact that the centers of our cities are now besieged. What is the solution then?

21. There is only one solution. To let the city grow in one direction. Instead of letting the center grow all around where the most valuable of land is, where there are the most narrow streets; let the center grow in one direction towards the outskirts, toward the areas of less pressure and lesser resistance. Then the city will move around the new center. Thus we can create a city which is four-dimensional, a parabolic city. This will be a dynamic city - Dynapolis.

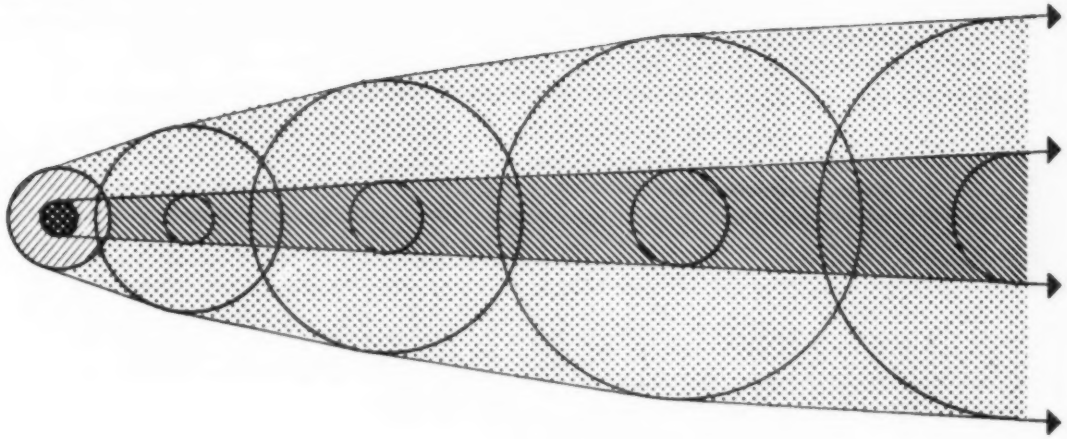
22. By necessity if our economy develops, if our population continues growing, we can only escape in one direction. The enemy is all around. As in every such case, we have to break through into the open. In this way we will face today's problems, but in solving them we will not be creating new ones. In this way we can respect the past and the future. Why do we think always that what the past generations have done in city building is wrong, that we are the ones who are wise, that we are better architects, that we create better styles, and we want to demolish everything else. Certainly we have to demolish certain houses and buildings because we have blighted areas, but we should not make demolition a target and a policy.

23. We have cities with very bad situations created over one, two, or three generations. These situations have to be faced, by remodelling and demolition. We cannot avoid it, but we have to have a certain policy in order to avoid even worse problems ten years from now. We should, therefore, orient ourselves to a new conception of the city to create new policies and programs and get the best result out of what we do.

24. We should orient ourselves to the basic change imposed by the dynamic growth of cities and by the motor car which has become part of our lives. We are now living with cars in an abnormal way, mixing up men and machines. This cannot continue anymore. Men and machines have to be able to work together without getting mixed. That means let men control a certain part of the city corresponding to the human scale and let the cars enter it only up to a certain depth without breaking through.

25. In the past the city block was the unit: it was a unit conditioned by the walking man, say 200 yards, so that he could easily walk round the block. Now that the car has entered our cities, we need a new unit. We need this unit so that the car can go from one point to the other at any speed, let us say for the length of one mile, undisturbed by people; whilst people remain in control within their sector, and are served by car up to any depth they like. But here the cars will not develop a speed disastrous to the people. They will be under control because they will move in a

C′



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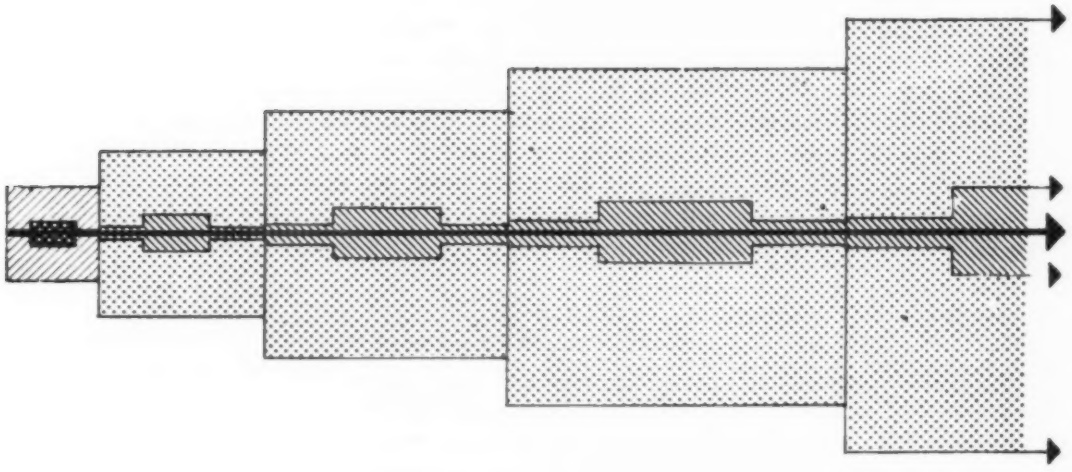

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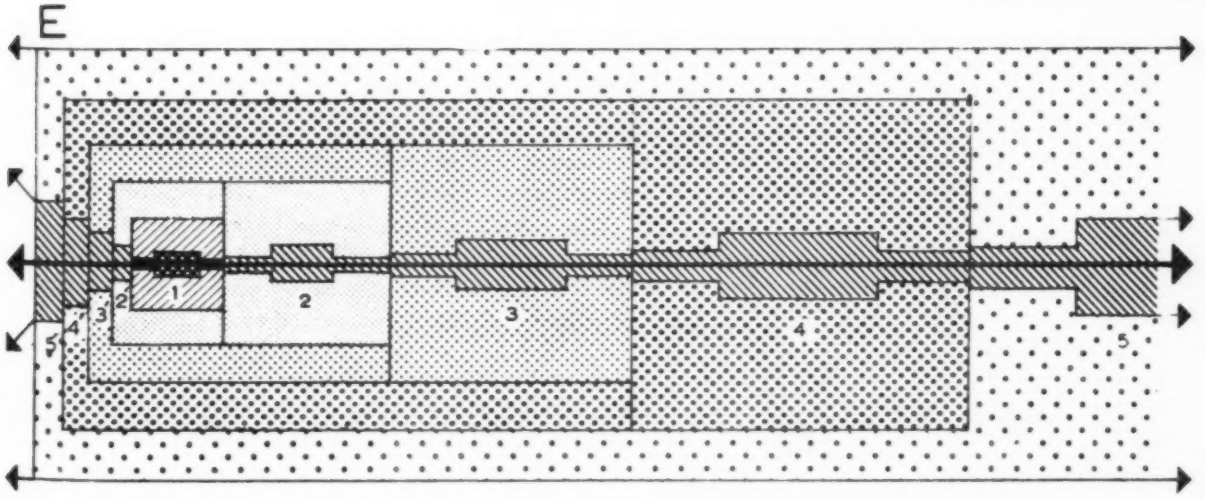


Center 1 will not be sufficient for the left hand part and must be partly relieved by Centers 2′, 3′, 4′ which must be wider than Centers 2, 3, 4 to serve sectors developing above and below Center 1

cul de sac. The people can move freely in the central part of the sectors, children can go to school, people can walk to the park and playgrounds, without having to think about cars. And cars can serve all these functions without killing or disturbing people.

26. We have to decide that the unit of the city block belongs to the past and the unit of the city of the future is the sector - until the car is replaced by some other machine, and then the sector may be remodelled or replaced by a new concept, by some new unit for city buildings.

27. It is only such a human sector which can at present create the basic unit for a balanced and happy community life. It is within this sector as a basic unit that we can plan properly from the social point of view.

28. Let us now try and see the total problem. If we change the notion of the city from static to dynamic, in order to foresee developments and avoid new problems; if we change the scale of the city from the modulus of a block to the modulus of a sector, is this enough? We have still the areas which need renewal now. In these areas we have two alternatives. One alternative is to demolish this part of the city, and change its density. If we change the density by increasing it, we will have new problems around this area. We may have saved the area but we have increased its density. Thus we will need more traffic toward this area. We will need other changes. These changes mean further changes in densities, etc. So this alone is not a solution.

29. If we do not change the density, then we have not allowed the developing functions to come into it, and they enter the next zone. How can we face this problem? It is only by accepting the fact of continuous dynamic growth that we can face this difficulty. The projects which may sometimes look logical, if seen without any relation to the city, are not justified because they may create around them more problems than the ones they are helping to solve. By necessity we have to change our whole approach.

30. We must provide the best technical services to everybody. We cannot afford to spend more for materials than necessary by using old time technique. We have to create the best architectural and cultural surroundings. Only if we serve all purposes simultaneously can we serve our community. Therefore, we need a new approach, an approach which we call Ekistics (the Science of Human Settlements), the approach of creating a new human habitat. This cannot be the approach of one technician thinking in a certain field only. It should be a new approach for the creation of the best type of habitat.

31. Therefore, instead of only making designs and plans, we must learn from the economists the technique of long-term planning, long-term programming, and see our

plans and designs only as three-dimensional projections of these long-term programs. Instead of thinking in terms of master plans which are static, we have to think in master development programs, and at the end of every year, to have our plan for the year, as a three-dimensional projection of the thinking of the community, of the ability of the community to develop itself. We must acquire new techniques from the economists. We have to learn from them to be able to re-adjust our thinking every year exactly in the same way as a budget office takes a long-term economic program and prepares the annual budget for one year ahead. The economists on the other hand have to learn from the physical planner the technique of projecting their one dimensional general programs into the three dimensions of space.

Abstracted from Town and Country Planning,
Vol. XXVIII, No. 7, July 1960. Pages 246-249.

THE GREEN BELT CONCEPT

John W. Reps

1. Professor Reps of the Department of City Planning, Cornell University, has been doing some research into tracing the history of the green belt idea. He especially shows the significance of Granville Sharp and Allen Gardiner who he thinks someday will take their places with Wakefield, Spence, Buckingham, and others whom Howard acknowledged as contributing to his "unique combination of proposals," first applied to Letchworth.

2. In Green Belt Cities, Sir Frederic Osborn traced the origins of the green belt idea from Biblical times to its modern restatement by Ebeneqer Howard. Our attention was called to the influence on Howard's thinking of the open land reserved around Adelaide and certain other towns in Australia and New Zealand. He speculated that it may have been the contribution of Col. William Light, who founded Adelaide in 1837, but added that Light might have been influenced.

3. Gardiner's Green Belt Proposal. There appeared in London in 1830 a book entitled The Friend of Australia: Or, a Plan for Exploring the Interior, and for Carrying on a Survey of the Whole Continent of Australia. The author was identified only as a "retired Officer of the Hon. East India Company's Service," but the work has commonly been attributed to Allen Francis Gardiner. It was published at a time when colonization policy had become an important issue of the day. The 400-page book, advanced specific policies for the further colonization of Australia, including detailed proposals for town planning.

4. Gardiner described his principles at length: "All the entrances to every town should be through a park, that is to say, a belt of park of about a mile or two in diameter should entirely surround every town, save and excepting such sides as are washed by a river or lake. This would greatly contribute to the health of the inhabitants in more ways than one, as well as pleasure: it would render the surrounding prospects beautiful, and give a magnificent appearance to the town from whatever quarter viewed." The probability that the Adelaide green belt was inspired by Gardiner in one way or another is obvious.

5. Granville Sharp's Colonization Plan. The most likely prior source of such ideas is a tract published in 1794, with a second edition in 1804, entitled A General Plan for Laying out Towns and Townships on the Newly Acquired Lands in the East Indies, America, or Elsewhere, by Granville Sharp. The town proper consisted of 172 building lots, with a central open square surrounded by public lots and sites for church and town hall. Completely surrounding the proposed built-up portion of the settlement and designed "common

land round the town" was a strip of land 330 feet wide. Beyond this, " out-lots" of 2 5 acres were to be laid out for gardens and small farms. Sharp also shows how the settlement unit could be further extended by adding 10-acre out-lots beyond the original boundaries. Reservations of land for public use in this farming area are also indicated

6. Unfortunately for our purposes, Sharp did not describe in his text the common land belt he showed on his plan. Nor did he mention how the town might grow once the town lots were all occupied and population continued to increase. We may only surmise that he, like Howard, might have advocated the founding of another settlement unit at an appropriate distance from the first community.

7. Sources of Sharp's Town Planning Theories We might now look backward beyond Sharp to speculate on the sources of his own ideas. There are many possibilities here, including the literary utopians, like More, or the Levitical cities that Sharp would have known well because of his Biblical studies. But there is a more immediate direct source of inspiration that appears more likely. This is the layout of Savannah as planned by General Oglethorpe in Georgia, and Oglethorpe's own partial reliance on an early unrealized eighteenth-century colonization plan.

8. Savannah was laid out in 1733 on a gridiron pattern. In the town proper, each forty lots were grouped around an open square. At first there were four of these groups, then two more were laid out by 1734. Surrounding the town lots, irregular in shape but rectilinear in outline, was a town common. Beyond the common were 5-acre garden lots and 45-acre farm lots laid out on a regular grid pattern. The close resemblance to Sharp's township unit is unmistakable. If the evidence is not conclusive, it is certainly persuasive that Sharp borrowed from this earlier experiment in town planning

Abstracted from South African Architectural Record
Volume 46, No. 4, April 1960. Pages 14 - 16.

THE AESTHETIC RELATION OF THE RESTORATION AND PRESERVATION OF HISTORICAL BUILDINGS TO TOWN PLANNING

Professor O. Pryce Lewis

1. Professor Lewis originally presented this paper at a symposium in Cape Town on the Preservation and Restoration of Historic Buildings consisting of members of the South African National Museum, the South African National Society (for the preservation of objects of historic and national interest) and the Cape Provincial Institute of Architects. The complete papers from this symposium are to be published in book form at the end of 1960.

2. It is a fair presumption that unless extraordinary circumstances intrude, it is the normal requirement that the historical monument shall remain, except for periodic renovation and minor adjustments of detail, unchanged over long periods of time. This is however diametrically opposed to the requirement that the city in which it is situated shall be capable of the utmost flexibility and change. Presuming, however, that there is a sincere wish to preserve what remains of our past, there appear to be three principal ways of relating the static historical monument to the changing environment. Paradoxically the first of these is removal! Secondly, there is the idea of separation, and, thirdly, that of incorporation.

3. Removal. However skillful the planner, however venerated the monument, there are occasions when it becomes impossible to retain it in its existing position. Such a case is Temple Bar, which in 1878 was taken to pieces and re-erected outside London altogether, freeing Fleet Street of what had become a serious restriction to traffic. In this case there was no possibility whatever of having this ancient gateway to the City of London as an island in the centre of the street, for the bypassing traffic lanes would have displaced equally venerable monuments on either side. Where monuments crowd one another, as in London, choices of this kind have had frequently to be made. In spite of this, it is worthy of notice that in the City of London there are no less than 103 monuments which that city has decided shall be kept; and the planners, C. H. Holden and Sir William Holford, have found this possible.

4. The very eccentricity of placing, draws attention to older patterns underlying modern cities, and in doing so becomes the measure of growth, the yardstick of progress. The eccentricities which may cause inflexions in the street system or in building lines should not generally speaking engender mechanical desires to remove and destroy all that stands in the way, but rather should constitute the raw materials of a richer solution to the planning problem, and therefore to the aesthetic considerations which flow from it.

5. Separation. The significance of historical buildings in central city areas often suffers from the innumerable distractions of intrusive elements not only because these are out of period, a consideration to which I put little importance, but because they are essentially chaotic, discordant and out of scale. The more obvious distractions comprise the more than usual wirescapes, like untidy cobwebs festooned about the streets, unorganised street signs, advertisements clinging to lamp posts and the unfortunate placing of poles supporting these elements relative to important features of the building. Untidy parking places, such as those to be found about the DeJonge Theatre in Riebeeck Square, detract from the dignity of buildings, while the richness of Baroque detailing in Cape Town often finds itself in conflict with the banality of adjacent shop fronts or the equally anonymous ineffectuality of twentieth-century mechanical thought as expressed in multi-storeyed office buildings. In this latter connection it is the contrast of the specific with the unspecified which is the essential difficulty, and it is this which has given rise to the idea of separation, not only in the relatively new concept of the precinct, a term widely used in Town Planning Reports overseas and exemplified in the Westminster and St. Paul's Precincts of the London Plans, but implicit in building groups of all ages, where that which is culturally valued has been separated from that which is regarded as of less value, and when that which is static and unchanging is contrasted with that which changes.

6. This kind of thought underlies nearly every one of the New Towns in England. Here the original village clustering around the church, castle or market square has been treated as a precinct subject to special aesthetic controls, ringed around by main traffic ways with the object of decongesting the original centre, but linked visually with the newer commercial areas.*

7. Integration. A City, such as Oxford, has over the centuries, and as a result of the thought of innumerable designers, added to itself piece by piece, often in differing materials and styles, without a jarring note. No one needs to think twice of the design virtuosity exemplified by Venice, where over many centuries a variety of buildings representing the whole history of architecture from the Roman--yes, there are Roman components--to the Napoleonic era have with unerring sensitivity been brought together in harmony and unity.

*The plan of Bagnols-sur-Cèze presented in EKISTICS 9:54, April 1960 is another example of the preservation of an historic town in relation to new development.--Ed.

Abstracted from Journal of the Town Planning Institute, Vol. xlvi No. 7 June 1960, Pages 159 - 163; Vol. xlvi No. 8 July-August 1960, Pages 201 - 204.

TOWN PLANNING IN HAMBURG

R. Rosner, H. Haase and H. H. Meyer

1. The first section of this report dealing with a projected plan was written by Mr. Rosner in collaboration with D. Haase, an architect-planner, and H. H. Meyer of the Hamburg Traffic Board. The section on Hamburg's current development and projects was prepared solely by Mr. Rosner.

A PROJECTED PLAN FOR GREATER HAMBURG

2. To meet the problems of increasing population, scarcity of building land, and overcrowded roads, we have attempted to produce an outline plan for Greater Hamburg incorporating contemporary British and German ideas in the field of town planning. We divided Hamburg into three concentric zones:

(1) the urban core
(2) the suburban zone, and
(3) the green belt.

This zoning mainly applies to development north of the river, because south of it, the Land Hamburg consists of low-lying horticultural areas and protected nature reserves. The only sizable urban settlement is the industrial town of Harburg, which forms a political entity with Hamburg.

3. The Urban Core. The core north of the river is enclosed by a roughly circular line within a 4-mile radius from the town hall. Within this core we propose a partial reduction of the pre-war residential density and a restriction of commercial development within the central area.

4. The Suburban Zone. The central core is surrounded by the suburban zone, which has a width of approximately 4.5 miles. This zone is to be divided into neighbourhoods each having 6,000-10,000 inhabitants. The neighbourhoods are to be provided with sub-centres including shopping parades, multi-storey block of flats, light industry and office buildings.

5. The Green Belt. The built-up areas are to be surrounded by a green belt up to a distance of 19 miles from the city centre. This belt encloses agricultural, horticultural and recreational areas and any existing settlements which are not to be expanded. The preservation of the green belt would be safeguarded by legislation similar to the London Green Belt Act. We further recommend the designation of

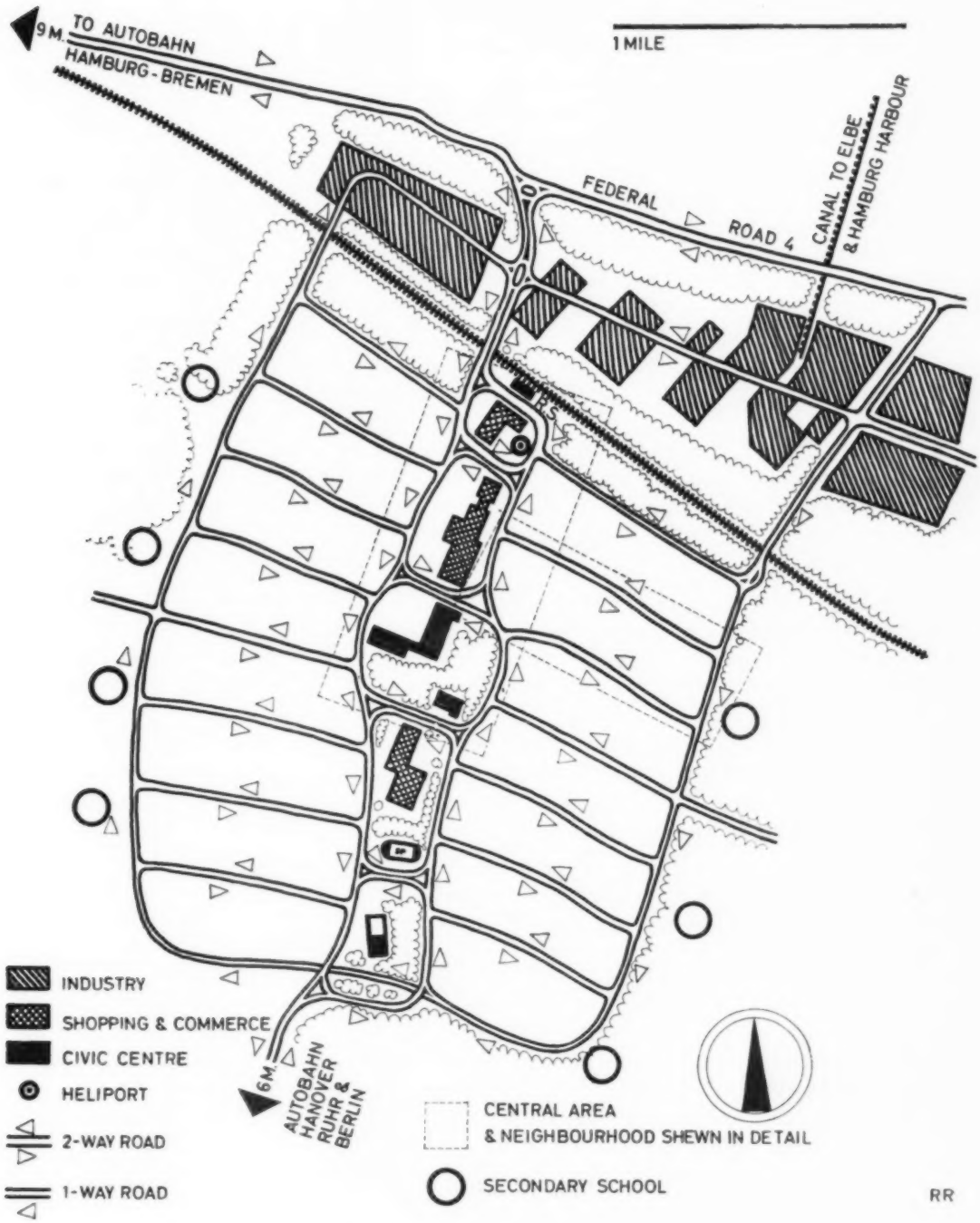


FIG. 2. THE PROPOSED NEW TOWN OF NEU-WINSEN NEAR HAMBURG

TRAFFIC DIAGRAM. The outer circle road has two lanes for one-way traffic moving clockwise. On the five interlinking roundabouts surrounding the central area one-way traffic moves anti-clockwise. The five central roundabouts connect with the outer circle road along 3-lane two-way roads which form the neighbourhood boundaries.

three new towns outside the green belt, each accommodating 80,000-90,000 inhabitants. One of these is to be north of Hamburg, the other two to the south of it, because the city's Continental trade routes lead mainly in a north-south direction.

6. Neu-Winsen. The new town of Neu-Winsen we have planned in detail. It consists of three main sectors:

(1) Two adjoining industrial estates,
(2) fifteen residential neighbourhoods and
(3) a central area.

These sectors are linked by a traffic system which is predominantly one-way. The lay-out of the town is compact because we intend to keep traffic routes and access to the countryside as short as possible. Although Neu-Winsen is to have 32,000 inhabitants, a walk from any point within a neighbourhood to the city centre or the countryside would take no more than 20 minutes. No worker would need more than 20 minutes to cycle from his home to his work.

7. The town centre is a narrow area, 1.25 miles in length, stretching from north to south. At the northern end, close to the two industrial estates, are the railway station and central bus station. Further south are exhibition and office buildings, blocks of flats, an hotel and the heliport. A footbridge links this group of buildings with the main shopping centre. The pedestrian traffic moves along a platform, 14 feet above datum level. Underneath the platform are parking places and storage areas, each served by separate traffic lanes. Lifts and escalators link the parking areas with the pedestrian platform. Footbridges connect the pedestrian platform with nearby neighbourhoods and in a southern direction with the administrative centre.

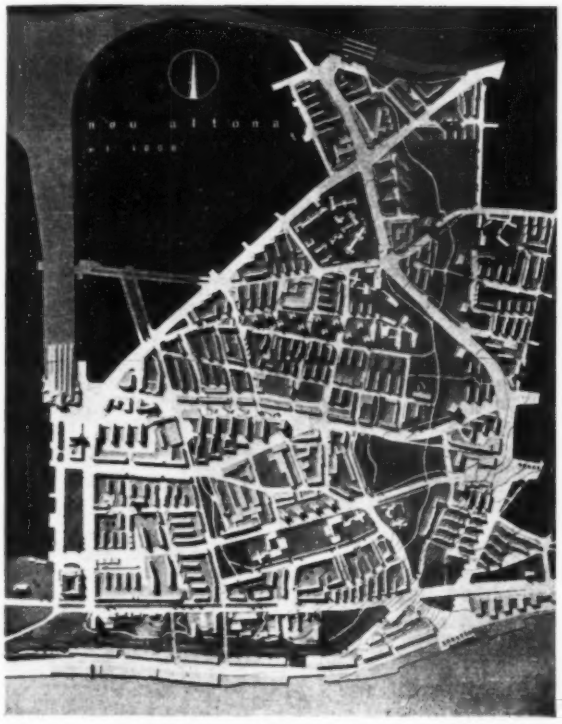
8. An outer circle road, two lanes wide, surrounds the greater part of the town. One-way traffic moves along this road in clockwise direction. On the five interlinking roundabouts, which encompass the central area, traffic moves anti-clockwise. The north-south segments of the roundabouts mostly have three traffic lanes and the east-west segments two lanes. The northernmost roundabout has four lanes because of its proximity to the industrial zone and the bus and railway stations. The five central roundabouts connect with the outer circle road along two-way roads which are three lanes wide; these link roads form the boundaries of the residential neighbourhoods.

CURRENT DEVELOPMENT AND PROJECTS

9. Hamburg, with 1,800,000 inhabitants, is the largest city in Western Germany. Centuries of expansion have given Hamburg a number of distinct features:

a. The Alster lakes: the smaller lake is enveloped on three sides by the central commercial area, the large lake is adjoined by development for well-to-do residents.

b. The harbour and docks.



HAMBURG. The Neu-Altona Reconstruction Area. Model of the completed project. Public open spaces extend from north to south as far as the shore of the river Elbe. The whole reconstruction area is to be served by district heating.

HAMBURG. The existing central area and the proposed uptown commercial centre.

HAMBURG. The Neu-Altona Reconstruction Area. A major road is to be closed and diverted to create this shopping centre.

c The central area with its stores, shops, offices, theatres, public buildings and quite extensive residential development. The area lies between the harbour and the Alster. Along its western limits a broad green wedge extends from the smaller lake to the river Elbe and contains public open spaces, the botanical gardens and grounds which were landscaped for the garden show of 1953. For a similar exhibition in 1963 the authorities intend building pedestrian ways from the Alster to the river; tunnels and footbridges will be provided for road crossings.

d. The model housing estates and parks which were developed thirty years ago when Schumacher was city architect and planner. He created the city park (Stadtpark) which includes formal and informal gardens, a swimming pool, a boating lake and a large turfed slope dominated at its highest point by an observation tower and planetarium.

e The 1,000-acre Ohlsdorf cemetery, a beautiful burial ground with many old trees and ponds.

10. Since 1945 two notable improvements have been added to the attractions of Hamburg; the first is a 10-mile footway along the northern shore of the Elbe, leading from the central area far into the open country. On one side of this way the pedestrain can enjoy an unrestricted view of the river and ships of many nations, and on the other side pleasant residential development, restaurants, cafés and wooded parklands covering the steeply sloping embankment. The second improvement is a shopping arcade adjoining a canal which traverses the central area from the Alster lakes to the Elbe.

11. Two residential districts are of particular interest: (1) a neighbourhood, adjoining the central area and the river, for the families of dock workers. This district was badly blitzed and is now being rebuilt at a housing density of 200 persons per acre. A tunnel under the Elbe is under consideration as a future improvement to the communications. (2) the Neu-Altona reconstruction area, which once was an overcrowded slum west of the city centre. In 1954 the authorities prohibited further development within the area for one year, and during that period a special team directed by Herr Dähn, a senior planning officer, and Prof. Ernst May, prepared a detailed plan. This was adopted and is now being gradually realized. This 525-acre project is one of the most extensive and imaginative urban reconstruction schemes in Western Germany.

12. With its 1,800,000 inhabitants and an annual influx of about 20,000 immigrants, Hamburg has problems of regional dimensions. Almost 25,000 dwellings are being put up yearly, yet there remains an acute shortage of accommodation. The volume of traffic exceeds the capacity of many roads. An ambitious programme of road extensions and improvements is being undertaken to relieve congestion.

A 6-lane through-road now traverses the central area and two more similar thoroughfa es are to be constructed soon. Eventually there will be 20 multi-storey garages in the central area and a number of dual-level road intersections and urban freeways are also being planned

13. An area of 300 acres has been set aside for use as a secondary commercial centre capable of offering employment to 35,000 people. It is not intended to create an additional central area. The new center will be made available to business houses which, operating without dependence upon either stock exchange or harbour, could be conveniently situated outside the central area. This uptown commercial centre will be near the perimeter of the urban core, 4 miles north of the town hall which is regarded as the geographic centre of the city. The site has many assets. It is owned by the city, it adjoins the city park and is favourably located north of the two Alster lakes which divide Inner Hamburg into eastern and western districts, causing many town planning and traffic problems. Adequate road and rail communications exist between these two districts and the projected centre Connections with the city centre and suburbs are also favourable. The project aims at achieving a harmonious relation between buildings, green spaces and car parks. The plot ratio of 1:5 appeared to be particularly suitable for the purpose. More than 40% of the designated area will be used for landscaped open spaces which are intended to form a continuation of the adjacent city park. Pedestrians will use footways and bridges, entirely segregated from vehicular traffic to reach their places of work. The scheme includes a central precinct which incorporates a hotel, a cinema or theatre, branch banks, restaurants, shops, a department store and some public offices. Pedestrians are to reach the precinct at ground level and service vehicles will approach via a road leading underground to basements Service industries, workshops, an electric transformer station and a district heating plant will be concentrated at the northern boundary of the site. With the inclusion of service industries, the zone reserved for commercial uses covers an area of 88.18 acres. Altogether 30 to 40 multi-storey office buildings are to be erected and the massing and appearance of the various blocks will be decided by means of architectural competitions.*

* An illustration of this project was not included.--Ed.

Abstracted from Official Architecture
and Planning. Vol. 23 No. 6
June 1960. Pages 262 - 265.

L. C. C. PLANNING — 1943 TO 1960

1. The London County Council has published a major review of its accomplishments. (County of London Development Plan: First Review 1960. County Planning Report, Volume One. London County Council, 50s.) It both summarises and draws conclusions from the information obtained in the course of a new survey and contains a record of progress so far made under the plan.

2. Post-War Intentions and Achievements. The acceptance by the Government of the Barlow Commission's findings on decentralisation, and of some of the Uthwatt Committee's recommendations, provided the starting point for post-war planning in London. The three great advisory plans--for the County of London (1943), for Greater London (1944) and for the City of London (1947) put forward the broad conception of a region of four rings and made proposals for the outward movement of people and industries to new towns and existing towns, containment of the built-up area by a green belt, and reconstruction of outworn areas.

3. Roads. A principle, affecting roads, was that wherever possible new traffic routes should be planned so as to create the minimum disturbance of existing communities and that the idea of precincts should be applied in suitable cases. In the replanning of London, the Council has borne in mind the idea of community and neighbourhood planning suggested in the County of London Plan. Wherever possible new routes do not cut across communities. In the Central Area, the counterpart of the community principle is that of the precinct. It implies the separation of vehicular from pedestrian traffic.

4. Housing Densities. The Forshaw-Abercrombie Plan proposed 3 density zones for residential development. The inner zone, lying mainly within the A ring road, had a maximum density of 200 persons to the acre; the intermediate zone, lying mainly between the A and B ring roads, had a density of 136; the outer zone had a density of 100. In the Development Plan the general principle of three zones was adopted but in the southern part of the outer zone the density was reduced to 70 and a few special areas were zoned at only 50 or even 30. In the present review it is not proposed to alter the main structure of density zoning but a number of changes in detail are proposed and a new zoning of 170 persons per acre which will be applied to certain areas (at present zoned at 136).

5. Experience in comprehensive development shows that freedom of design enables high densities to be achieved satisfactorily. Elsewhere, in density zones of 100 persons per acre or less, densities higher than the zone average may now be allowed for large-scale redevelopment schemes where provision is made for adequate open space, schools

and other social needs. Higher densities will also be permitted in housing schemes near local town centres where, on account of good transport facilities and other local conditions, such development is considered to be desirable. A further proposal is for higher densities on sites with waterside amenity.

6. Ultimate Population of the County. A calculation has been made to show the ultimate effect of the proposed density changes on the estimated approximate population of the County. It was assumed for this purpose that the County would eventually be redeveloped entirely at the averages of the density zones, that four acres of open space would be provided for every 1,000 people, and that non-conforming users would be relocated in accordance with the use zoning on the Town Map. So far as can be judged a figure of around 3.5 million people would eventually be reached.

7. Industry. The Council has accepted the principle that residential accommodation in each locality should be matched to industrial provision; it has further agreed that, in cases where it is desirable to segregate industry from residential areas, the factories should, as opportunity arises, be brought into industrial estates--some of which should be sited in the outer parts of the county to provide work locally. For many years there has been an outward movement of industry from the centre and the Council's policy, aimed at reducing industrial employment to match the reduced resident population of the County, has encouraged this movement.*

8. Open Spaces. Another of the principles accepted by the Council in 1945 was that the standard of open space should be 7 acres per 1,000 population. Limitations on capital expenditure have slowed both the acquisition of land and the laying out of new public open spaces where land was already available. This is regrettable as it is of great importance that in the reconstruction of obsolete areas the creation of new open spaces should go hand in hand with the building of houses and schools.

9. Residential Areas. In the process of replanning, the Council has applied the community principle to the siting of all developments, the greater opportunity for this having occurred when reconstruction on a large scale has been undertaken. The key-note of the policy is to foster the development of local loyalties associated with different parts of London.

*The British local tax system does not rely upon the taxation of industrial property to meet local costs of education and public utilities, etc.

10. Future Prospects and Problems. In considering the main problems facing the L.C.C. as planning authority it is convenient to think of the county area as divided into three parts:

a. The Centre. To combat congestion in the centre the Council considers it essential to restrain office building in the Central Area, and to encourage location of offices elsewhere in the region; to encourage the provision of car parks so as to clear parked cars from the streets of central London; and to make improvements to the road systems. The Council has also decided to encourage more residential building in and near the centre and to permit, in certain parts of central London, a mixture of residential and business on the same site. The Council's aim is also to attain, in co-operation with developers, good civic design including the development of precincts. New methods have made it possible to exploit the advantages offered by high buildings and to create pedestrian areas free from the hazards of road traffic. No more intricate problems arise in civic design than the disposition of many buildings close together, and a solution of these problems can make a major contribution to the viability of city centres in the next half century.

b. The Middle Belt. In the middle belt of obsolete mixed development there are areas where the density of population is much too high. Families who have been crammed into row houses in multiple occupation must be given homes of their own: in the process, many of the families may divide. Industrial firms are encouraged and assisted to leave their cramped and inadequate factories within this belt so that the sites can be used for houses and much needed open space. Even so there will not be enough land locally to rehouse everyone adequately.

c. Outer Ring. In these fringe areas property mostly has a long life and there is little opportunity for redevelopment. Here the object must be to redevelop where necessary, to maintain existing amenities, and to prevent deterioration.

The following six pages are reproduced from House and Home, August 1960, pp 117, 143, 164, 165 and 49.

There are five main reasons (all short-term) for today's seeming shortage-in-the-midst-of-plenty

Reason No. 1: Speculation

Countless acres are being held in "cold storage" by land speculators hoping for still higher prices tomorrow than their land would fetch today. (Some of these speculators are syndicates formed for the express purpose of land speculation; others are estate owners sitting tight for still bigger capital gains on their property, or farmers more interested in land prices than in crop yields.) This speculation is the No. 1 reason for expecting that great quantities of land will come on the market when the speculators decide prices can go no higher, so it is the No. 1 reason you can be sure supply will eventually overtake demand and bring prices down. (Outside Montreal, for example, the *Star* found that speculators were holding 610,000 acres—eight times as much land as the city's booming growth can use before 1970.)

Reason No. 2: Time

Countless acres now being developed will not be ready for homebuilding for another year or more. For example, the first 209 lots in the great Marin Bay project north of San Francisco did not go on sale until this month—four years after the land was bought by the developers.

Land development takes so long that the supply of land ready for homebuilding responds slowly to the stimulus of high prices, *but it responds massively.** In Florida, for example, FORTUNE found that more land is being developed right now than today's fastest-in-the-nation rate of population growth can absorb before 1980. When all this land hits the market, something is bound to happen to the sky-high land prices that invited overdevelopment.

Reason No. 3: Overzoning

Countless acres are being withheld from economic use today by communities deliberately using wasteful zoning requirements, wasteful street improvement requirements (see *page 171*), and wasteful building code requirements to keep out tract builders and small homebuyers whose children would cost the town more to educate than their parents would pay in taxes.

These towns hope these 'snob' requirements will one day attract upper-class residents who will pay high taxes, support local merchants handsomely, and send their few children away to school. This is a sort of municipal land speculation on a grand scale. How much longer it can continue is an open question, for two reasons: **1.** The courts may not always agree that the health and safety of the people necessitate two-acre lots, 16" truss spacing, worse-than-useless house traps, rigid-conduit wiring, and local streets wider than the transcontinental Lincoln Highway 25 years ago, and

2. The towns themselves may vote out the restrictions when enough local landholders are tempted by the higher land prices they could otherwise get. One New Canaanite has already carried his protest to the Supreme Court, arguing he could get $250,000 more for his acreage if his four-acre zoning were voided.

Reason No. 4: Fragmentation

Countless underused acres are bypassed because they are broken up into holdings too small for economical development (unless, of course, all the small owners agree to sell at once). Says Dave Bohannon's righthand man Ron Campbell: "Trying to get a big enough piece to develop is a nightmare." Often the land needed to integrate a tract is tied up in an estate and the heirs are scattered or divided. So Nate Manilow and Phil Klutznick had to go out 30 miles from the Chicago Loop to start Park Forest; Bill Levitt had to go 16 miles from Philadelphia and 15 miles from Trenton to start Levittown, N. J.; Frank Sharpe had to go ten miles from Houston to start Sharpestown.

Reason No. 5: Misinformation

Billions of dollars worth of land is bought and sold without either party having anywhere near enough market facts to support his price judgment. Both buyer and seller must grope to decisions by hunch and by guess, for America's biggest industry must get along with more inept and inadequate statistics than any other industry. The federal government spends more money for market research on peanuts than for market research on land and housing. Few communities compile even such simple statistics as the number of lots subdivided each year. Nobody keeps a running inventory of unsold lots; nobody publishes the price at which sales are actually made. So scarcity is exaggerated and prices are inflated by professional optimists spreading inside dope that cannot be checked.

"The only way land price inflation can be prevented is to tax land more heavily"

So said the consensus of the topflight economists, mortgage lenders, realtors, homebuilders, and manufacturers at the HOUSE & HOME Round Table on tight money and inflation (H&H, Jan). And they went on to say:

> "A substantial part of the local tax burden now carried by improvements (like houses) should be shifted to the land itself.
>
> "Taxes are the only important costs a land speculator must pay, so taxes are the only brake on the price of land, which reflects the capitalized margin between the rent the land can be expected to earn and the tax burden it can expect to carry. The bigger the land tax the smaller this margin will be and the less chance of big profits in land speculation. [In much of Australia and New Zealand improvements are not taxed at all; almost the whole cost of the local government is paid by taxes on land alone. *See page 00*]
>
> "Taxing land more heavily would make the unearned increment in suburban land values pay the cost of schools and other community improvements needed to convert raw land into housing.
>
> "Taxing land more heavily would let homebuilders offer better homes for less money.
>
> "Taxing land more heavily would reduce the taxes on good homes by increasing the taxes on vacant and underused land.
>
> "And incidentally taxing land more heavily would cut the cost of highway extension by cutting the land costs for the right of way.
>
> "The steepest price inflation of all has been the price inflation in land, but . . . We have no land policy designed to bring the land needed for our population growth on the market when it is needed. On the contrary, we make it easy [by undertaxation] for land speculators to hold their land off the market in anticipation of still higher prices later."

Twenty-three years ago the report of the National Resources Committee pointed out that taxes on improvements discourage building by reducing the profits the building can earn, whereas taxes on land stimulate building by decreasing the price the builder has to pay for the land he builds on. Its report continued:

"State and local authorities should consider reducing the tax rate on buildings and increasing the rates on land, in order to lower the tax burden on homeowners and stimulate the rehabilitation of blighted areas and slums."

If only land were taxed in Kew, Victoria, this nice home would be taxed 55% less.

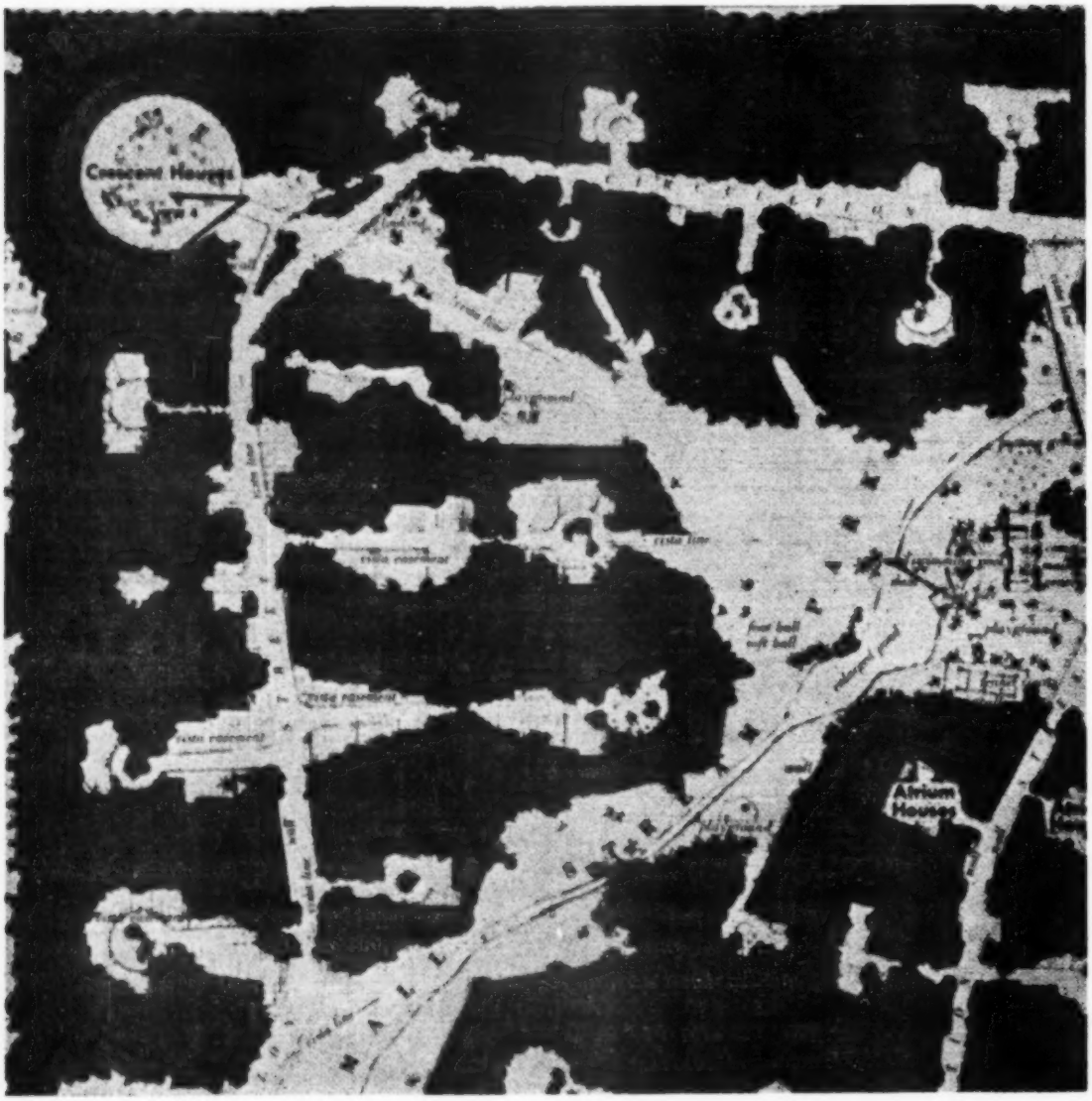
Because only land is taxed in Camberwell, Victoria, the owner of this good house was taxed 61% less.

Because only land is taxed in Wellington, N.Z., the owner of this run-down house was taxed 112% more.

Because only land is taxed in Camberwell, this vacant lot is taxed 289% more.

Because only land is taxed in Wellington, N.Z., this old building on a good corner was taxed 132% more.

GRAND PRIZE WINNER among 4,000 land plans entered in Mastic Tile's 1959 contest, this plan includes four types of houses (opposite) grouped in 56 "micro neighborhoods." One-third of the houses are row houses. Plan is by Dallas Architects Howard Meyer, James Pratt, and John Box.

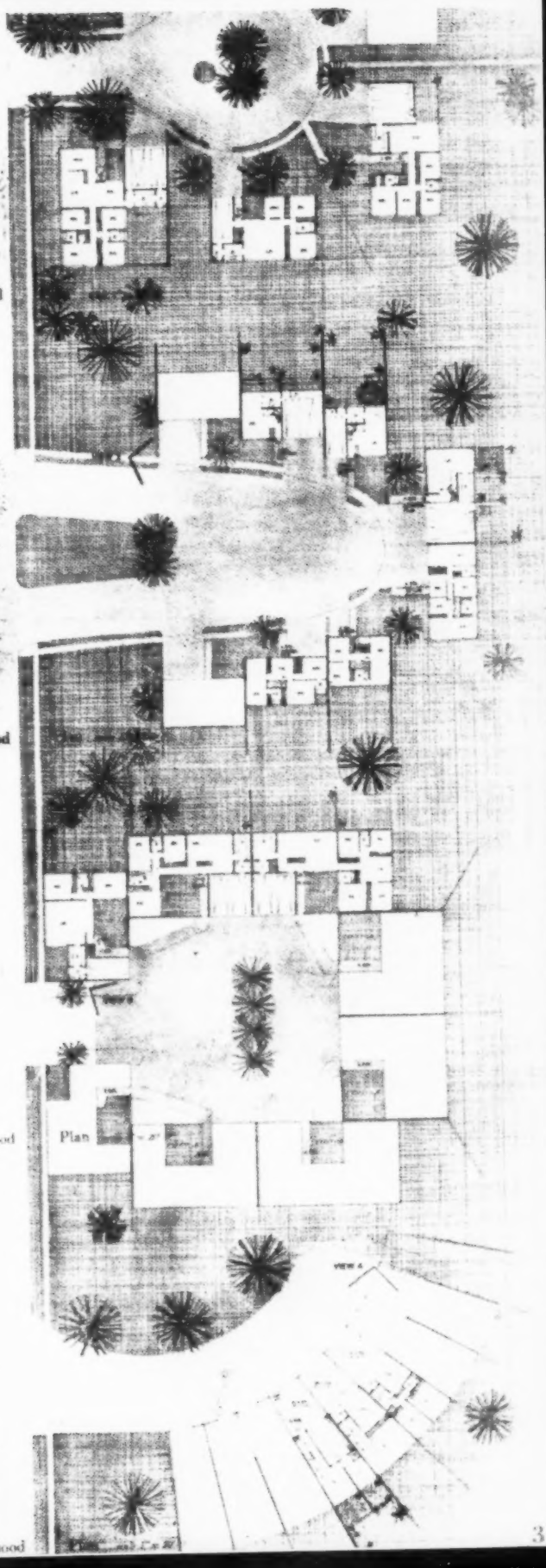


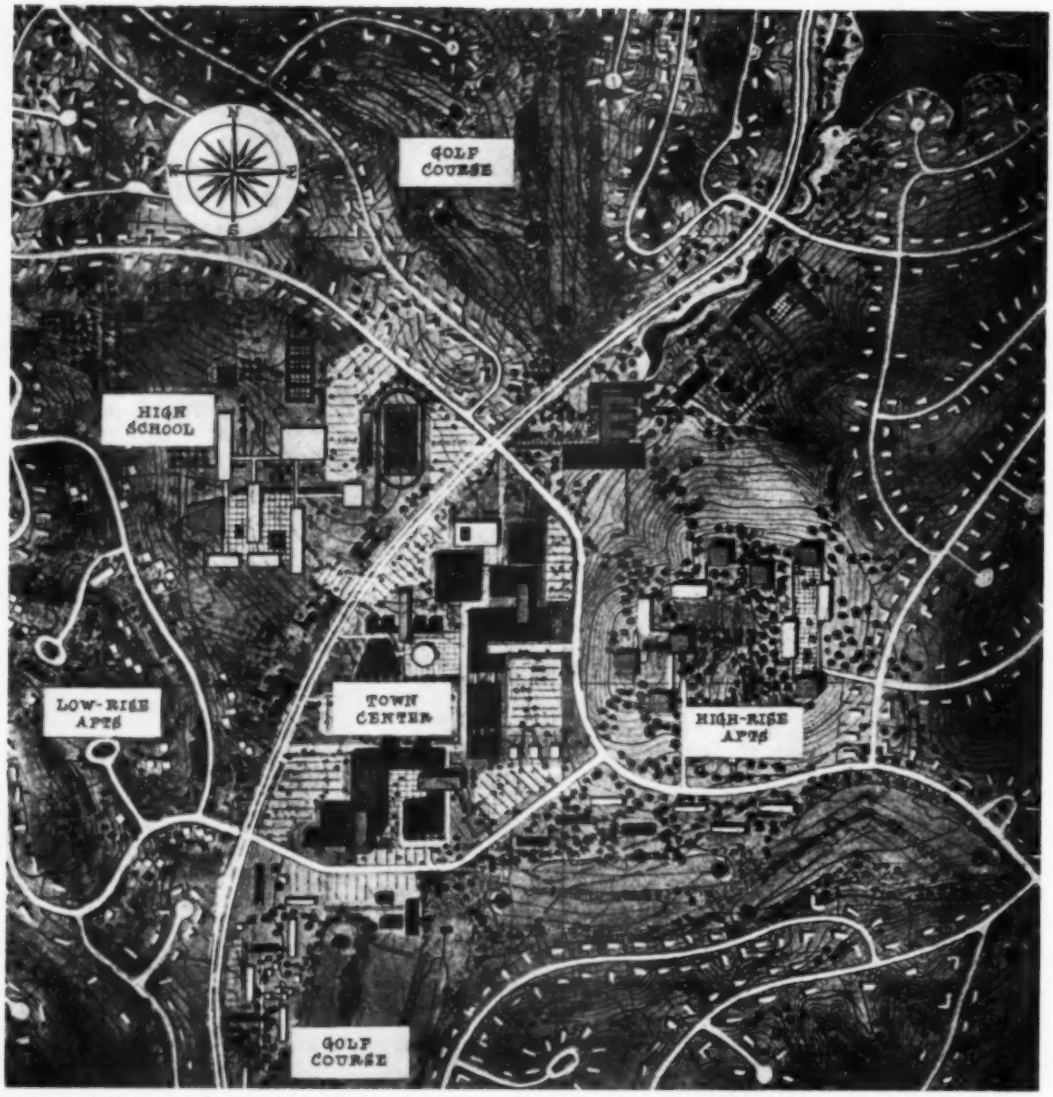
Detached House Micro-neighborhood

Staggered Row House Micro-neighborhood

Atrium House Micro-neighborhood

Crescent Micro-neighborhood





TOWN-CENTER SECTION of master plan at left shows some of the varied housing, school, and recreation facilities. Streets follow land contours.

The master plan grows out of the land

When Victor Gruen worked out this master plan for Laguna Niguel, he did his original layout on a greatly enlarged aerial map which showed every topographical feature of the entire 11 mile tract. His objective was to plan a community that fits hand-in-glove with the terrain.

The rolling hills and the softly contoured valleys not only determined street and highway locations, but the siting of all the major elements shown on the fold-out relief map opposite.

Photos: Marvin Rand

The small residential neighborhoods, each close to a school and a shopping center, are located throughout the area. Most apartment groups are near the town center (and the main shopping center), others are along main roads near smaller shopping centers, one is on a lake shore.

The research park is in a self-contained area isolated from houses. The industrial area, still farther from the residential districts, is located along a railroad (at lower right on plan opposite). Recreation facilities play a major role in the plan, and the location of two golf courses, the parks, and the man-made lakes was dictated by (and takes advantage of) the terrain.

Abstracted from a Statement prepared by the Joint Committee of the American Institute of Planners and Institute of Traffic Engineers. August 1960. ? Pages

THE PROFESSIONAL RESPONSIBILITY OF CITY PLANNERS AND TRAFFIC ENGINEERS IN URBAN TRANSPORTATION

1. The goal of both city planners and traffic engineers should be the development of a unified transportation program that effectively fosters sound community development and assures safe and efficient transportation services. The following outline indicates the general responsibility of the city planner and traffic engineer in various phases of the transportation program.

2. Gathering the Facts. Basic to any sound transportation plan is a continuing fact-gathering program. This above all requires co-operative action. For this reason the National Committee on Urban Transportation recommends that a technical coordinating committee including the city planner and traffic engineer, be established to guide the general collection of facts and development of the transportation plan and program. With such a committee framework, the responsibilities of the city planner and traffic engineer generally should follow the pattern below. In some instances the joint responsibilities may involve only advisory duties; in other actual participation in the work.

a. Joint Responsibility:
   (1) Street use study
   (2) Origin and destination study
   (3) Study of transportation expenditures

b. City Planner's Responsibility:
   (1) Landuse survey
   (2) Economic base studies
   (3) Population surveys (zone by zone)
   (4) Employment surveys (zone by zone)
   (5) Social and economic surveys

c. Traffic Engineer's Responsibility:
   (1) Traffic volume surveys
   (2) Travel time studies
   (3) Street capacity studies
   (4) Parking studies
   (5) Accident studies
   (6) Control devices surveys

3. Analysis of the Facts. The analysis of the data collected will be largely the responsibility of the professional groups that have assembled the information. However, collation of the facts and their evaluation should be a joint effort. Mutual understanding of how the facts are interrelated is most important in the development of an effective transportation plan and program.

a. Joint Responsibility:
   (1) Determination of relationships between land use, transportation facilities and travel habits
   (2) Analysis of the street patterns--spacing, intersection frequency, traffic volume and land use type
   (3) Review of the traffic and transit service characteristics
   (4) Analysis of land access problems as related to types of streets

b. City Planners Responsibility:
   (1) Evaluation of residential land patterns
   (2) Evaluation of commercial and industrial patterns
   (3) Location study of parks, schools and other public facilities
   (4) Analysis of social and economic patterns

c. Traffic Engineer's Responsibility:
   (1) Comparison of existing volumes and street capacity
   (2) Comparison of travel times on various street segments
   (3) Comparison of accident patterns for various street sements
   (4) Analysis of traffic control measures

4. The analysis of these facts should be used in developing projections of future land and traffic patterns. This will call for a joint decision as to how this can best be done for a particular community. Once this is achieved, the nature of the traffic problem should be evaluated by all professional groups associated with carrying out the transportation plan.

5. Developing the Plan.

a. Joint Responsibility:
   (1) Establishment of general objectives relating to community development
   (2) Adoption of standards for transportation--design capacities, cross sections, access controls, spacing and intersection frequency, speed, etc.
   (3) Determination of transportation and terminal deficiencies
   (4) Formulation of alternative solutions that should be considered

b. City Planner's Responsibility:
   (1) Review of land use and density patterns to help formulate overall objectives as to the development and redevelopment of the community
   (2) Consideration of the different land use and density alternatives that could be realized by the community
   (3) Assessment of the effect that various transportation plans would have on land development
   (4) Coordination of the transportation plan with all other elements of the general plan

c. Traffic Engineer's Responsibility:
   (1) Review of existing level of transportation services as a means of determining appropriate standards
   (2) Testing the various transportation alternatives including assignment of traffic to the various proposed systems
   (3) Determination of the several types and location of transportation facilities with regard to operational aspects

6. Following the testing of adequacy of the alternatives, an evaluation of each proposal should be made. The technical coordinating committee can now recommend which plan is most appropriate for the community.

7. Carrying Out the Plan. A close working relationship between the various professional groups can help to insure the logical development of the transportation program, while at the same time minimizing disruption of normal community activities:

a. Joint Responsibility:
   (1) Determining the exact location of proposed transportation facilities
   (2) Establishing transportation improvement priorities
   (3) Keeping the data and plans up to date

b. City Planner's Responsibility:
   (1) Establishing the necessary planning program (off-street parking and load requirements in zoning ordinances, requirements that subdivisions conform to the transportation plan, etc.) to foster the development of the transportation plan.
   (2) Consulting with the traffic engineer to report on the impact that various zoning changes will have on transportation problems

c. Traffic Engineer's Responsibility:
   (1) Establishing the necessary operational and control measures to assure smooth traffic operation during construction of facilities
   (2) Determination of operational measures necessary to effectuate the transportation proposals
   (3) Review with the city planner proposed major traffic operational changes like one-way street and thru-street program

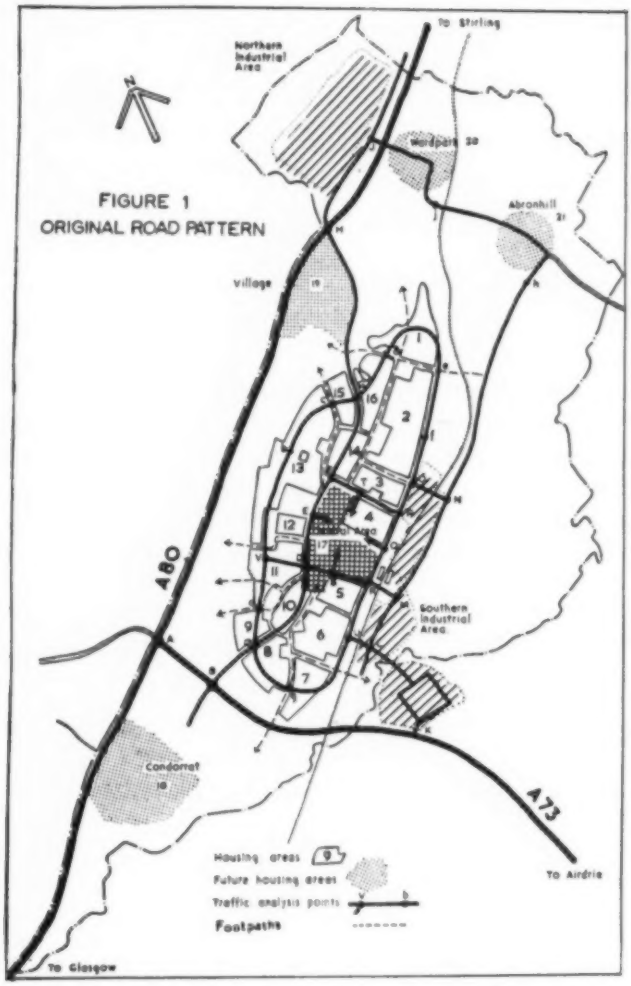


FIGURE 1
ORIGINAL ROAD PATTERN

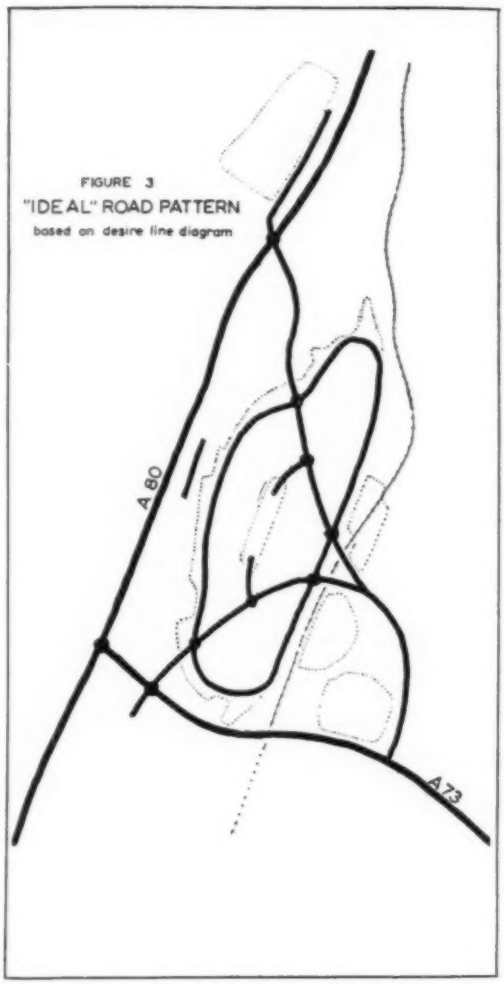


FIGURE 3
"IDEAL" ROAD PATTERN
based on desire line diagram

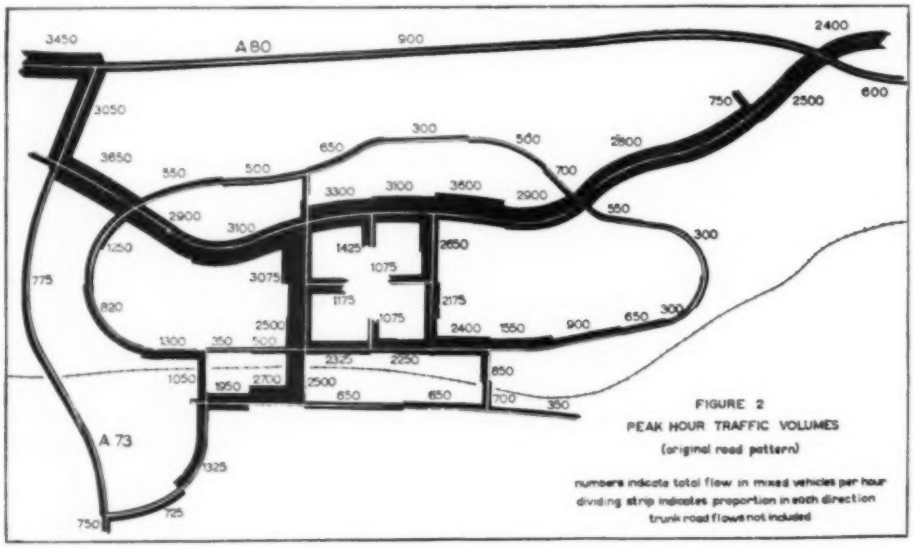


FIGURE 2
PEAK HOUR TRAFFIC VOLUMES
(original road pattern)

numbers indicate total flow in mixed vehicles per hour
dividing strip indicates proportion in each direction
trunk road flows not included

Cumbernauld New Town

Fig. 1: Various patterns were considered for the town road system and the original Basic Plan included three radial roads providing connections to trunk roads A 73 and A 80. It was intended that these radial roads should be linked by an outer ring road serving most of the housing areas and an inner ring road encircling the centre to avoid congestion in that area.

Fig. 2: After publication of this plan a traffic analysis was undertaken to test the correctness of the assumptions in the plan and to provide a basis for the design details of the road pattern.

This analysis threw up one very major problem relating to the road proposals in and around the central area. Of the eight junctions on the inner ring road at least five would have had to provide for grade separation with designs capable of handling flows up to 4,500 vehicles per hour.

Fig. 3: After a study of various alternative plans one pattern was eventually suggested as forming the best basis for the road plan when considered in relation to other planning considerations.

Fig. 4: This was then considered in detail with reference to the comprehensive development of the whole hill-top area and a further traffic analysis prepared. The fact that the road pattern was dealt with as part of a comprehensive planning scheme for the whole town is of crucial importance.

The revised road plan incorporates three main radial roads running from the trunk roads up onto the hill-top where they are connected by radial link roads, with junctions giving access to the central area, and by a ring road. The radial link roads bypass the central area and provide major routes for local through traffic moving from one part of the town to another. Without being so conceived the radial and radial link roads have emerged as urban motorways in form in that there are no connections to them except at the junctions, which are limited in number. To ensure the maximum freedom from congestion it is important that traffic should proceed from one type of road to another in order of importance, each road being designed and constructed for its particular functions. Thus a vehicle from one of the housing areas, proceeding to a point outside the town, would use the local development road leading into the feeder road (ring road), join one of the radial roads at a major junction and so gain access to a trunk road. The major junctions have been designed on a grade separation basis, although it will be possible to carry out the work in stages.

The final road plan was evolved as part of the general planning proposals for the town after detailed consideration of lines and levels of roads and junctions and their effect on the size of school catchment areas and the layout of housing and industrial areas. Some attention was also given at this early stage to the possible position and treatment of embankments, cuttings, underpasses and bridges.

Fig. 5: A Revised Traffic Analysis was then prepared on the basis of the revised road proposals.

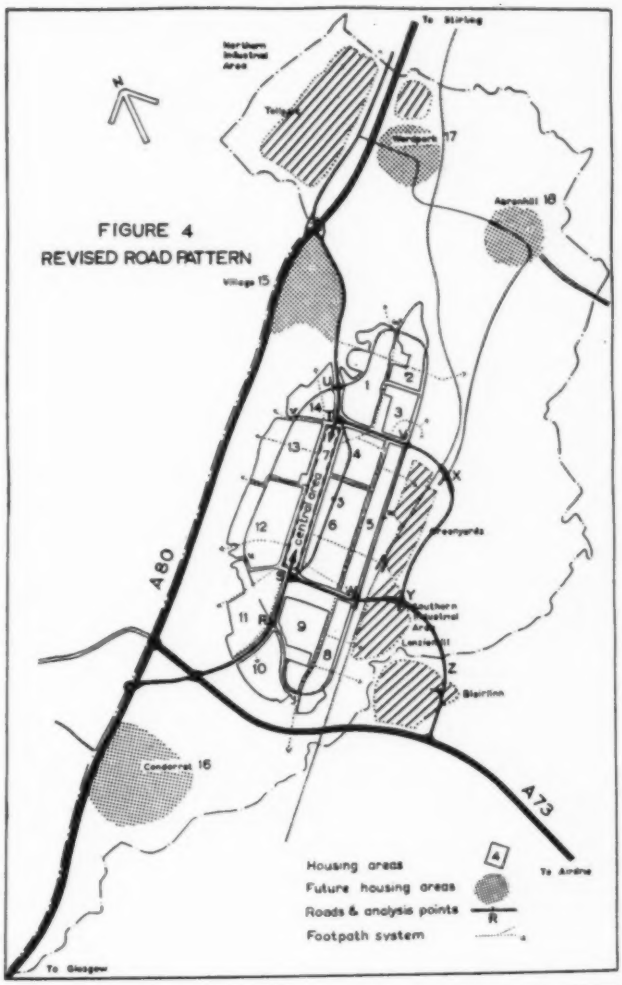


FIGURE 4
REVISED ROAD PATTERN

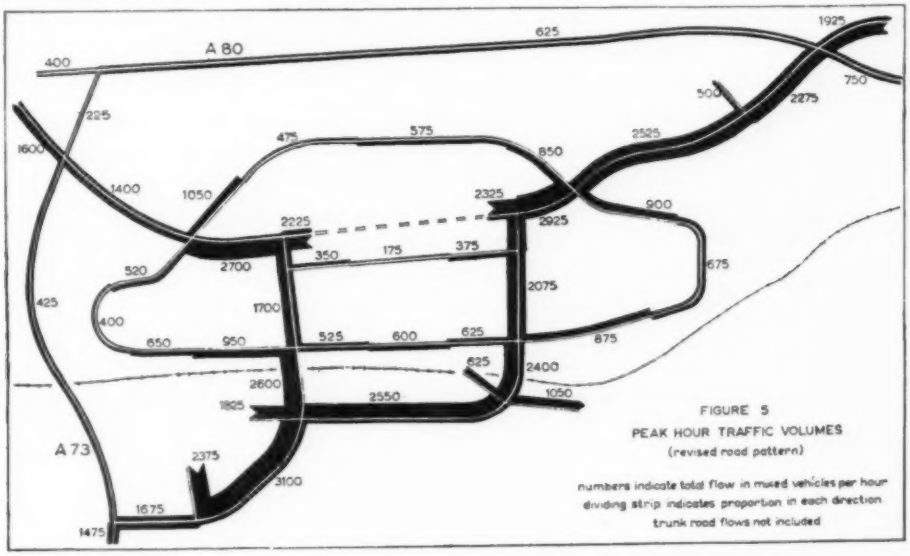


FIGURE 5
PEAK HOUR TRAFFIC VOLUMES
(revised road pattern)

numbers indicate total flow in mixed vehicles per hour
dividing strip indicates proportion in each direction
trunk road flows not included

Abstracted from The Architectural Review
Volume CXXVIII Number 762 August 1960.
Pages 124-134.

PARKING TERMINALS

Michael Brawne

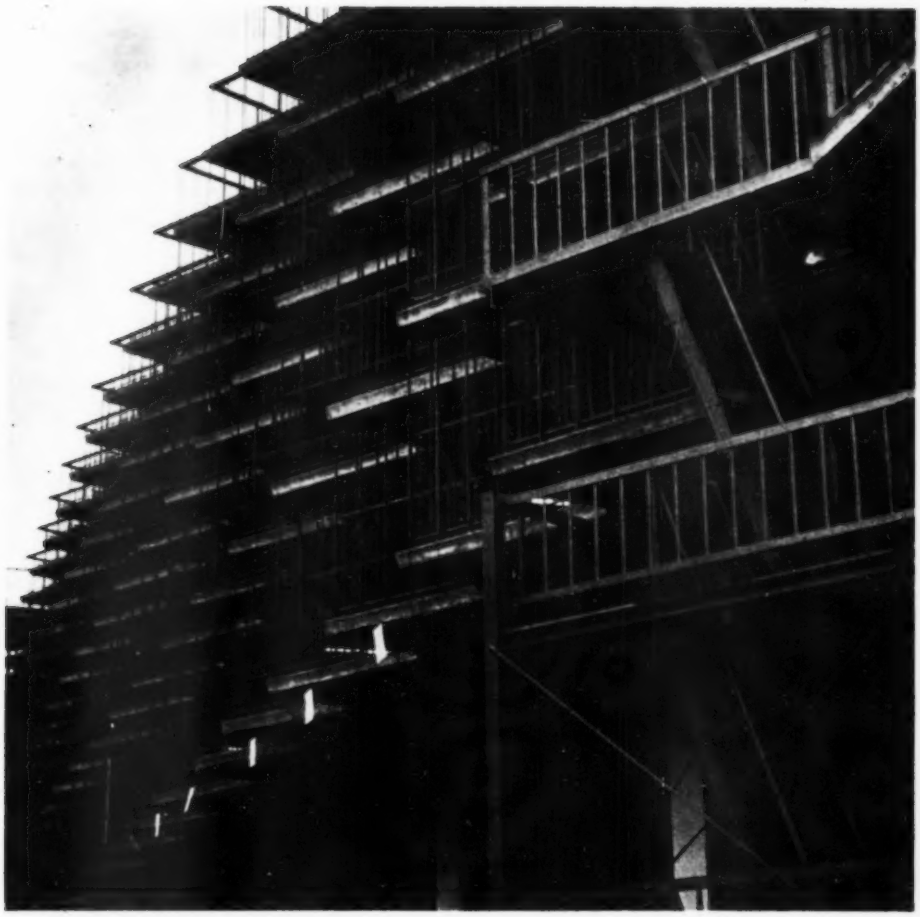
1. Michael Brawne surveys the various possibilities, in actuality and in theory, of providing parking terminals. It is suggested that the parking terminal be transformed to a natural place for cars to come to rest and where the motorist willingly becomes a pedestrian. As such the parking garage becomes a valid and valuable contribution to the urbanism and architecture of the town.

2. Parking structures are terminals; like the great railway sheds of the nineteenth century, they are the points of interchange between two forms of movement: the private motor car and the pedestrian, public transport, lifts, escalators or moving pavements. The great Autorimessa at the land end of Venice, now twenty-seven years old, is thus still in terms of location the unsurpassed prototype. Failure to determine the position of parking structures in relation to a town's traffic pattern, both on plan and in section, may compromise or even make impossible a rational decision in the future.

3 Both publicly and privately owned parking depends for its success, in terms of economics and town planning, on being backed by ordinances which forbid or severely restrict street parking. Even where the demand for parking space is such that a parking structure is certain to be a financial success, street parking should be deliberately limited. Parking facilities should always be considered as means of clearing cars from crowded streets, not as devices for attracting a greater volume of traffic.

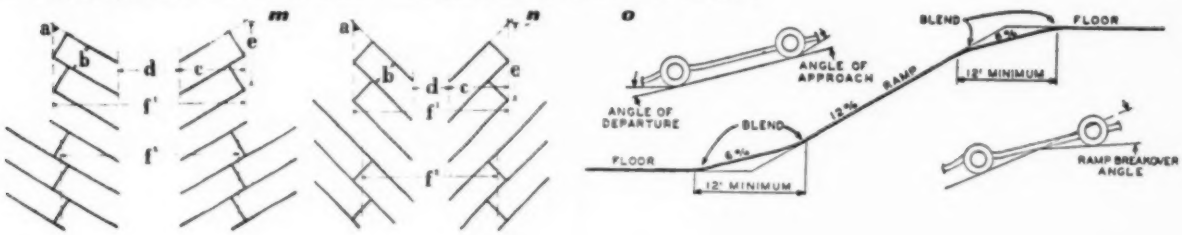
4. Cars can be stowed aloft under their own power or mechanically positioned. The choice is one of economics. Mechanical handling compresses the operation into a smaller space, since both horizontal and vertical movement is in straight lines and clearances between vehicles, being mechanically pre-determined, can be at a minimum. The cost of the equipment is considerable and its use is only justified where land values are very high or the plot is so small as to make other parking arrangements impossible. Most mechanical systems consist of a hoist which can also move horizontally, a kind of lift on rails. In the case of the Pigeon Hole system, Portland, Oregon, the lift runs on rails on the ground, in the Bowser system it is suspended from the roof. Some of these operations can be done manually especially where cars are still small and labour costs relatively low. In the Pearce system, Birmingham, England, all movement is by straight lines and only vertical movement is mechanical.

5. Self-parking, like the self-service shop, appears to make sense in terms of economics and psychology. Although the amount of area needed per vehicle is greater



14, *the staggered floor parking which is connected to the store floors of ZCMI in Salt Lake City has a barrier of steel rods painted red oxide. This interesting building, designed by Larry Farrant and Bowen, Rule and Bowen, was built from the top downwards—the shuttering being suspended from the top floor—so as not to stop access to the service entrance of the shop.*

The dimensions in feet assuming a generous stall width, b, of 10 feet are for 60° parking, diagram ***m****,* $c = 21.5$, $d = 18.0$, $e = 11.5$, $f^1 = 61.0$, $f^2 = 56.0$ *and for 45° parking, diagram* ***n****,* $c = 20.5$, $d = 13.0$, $e = 14.1$, $f^1 = 54.0$, $f^2 = 46.9$. *The 10 feet width allows for easy customer parking and future changes in car size.* ***o*** *shows an important detail of ramp design taken from* Traffic Design of Parking Garages, *a study by Edmund Ricker for the Eno Foundation for Highway Traffic Control.*

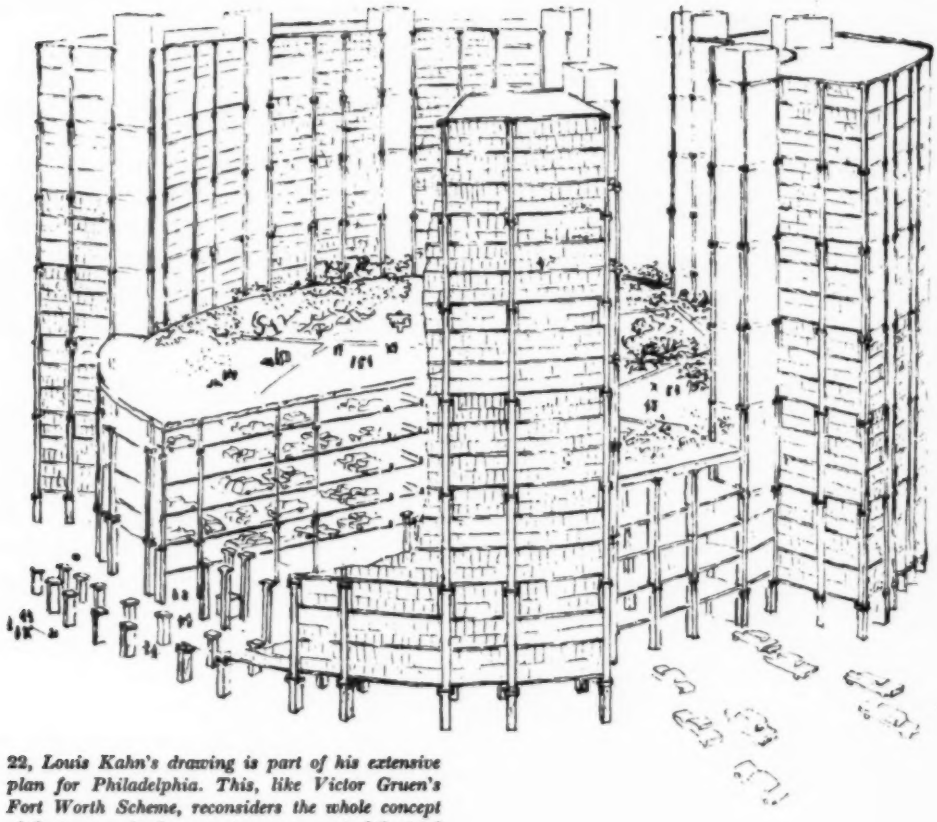


than for either mechanical or attendant operated structures, the running costs are considerably lower. A parking structure may be operated by a cashier at the exit only. The driver is issued a time stamped ticket at the entrance by a machine and then parks his car in the first available space. The ticket and parking fee are collected at the car exit. The ticket machine can be connected to a gate across the driveway which is only raised after a ticket has been issued.

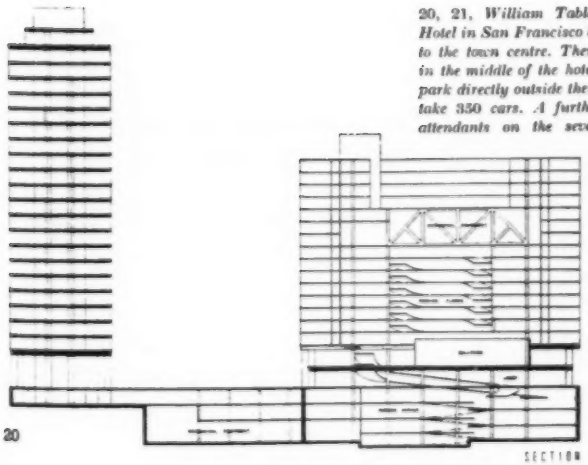
6. The wider and shallower ramps and the more unobstructed floor spaces needed in this type of parking give a considerable degree of flexibility in use. As cars have got longer in the United States many structures are now used uneconomically since vehicles no longer fit the divisions assigned to them. This applies particularly to column spacings and aisle widths. Wherever possible floors should be free of columns. This demands spans of about sixty feet. The great virtue of such an arrangement is that as the dimensions of the cars change, the angle becomes shallower. A further important advantage of allowing generous dimensions, such as a 10 ft. stall width per vehicle, is that parking efficiency is largely measured in terms of time. Unless movement in and out of stalls and up and down ramps can be done speedily, serious hold-ups can occur at times of greatest use. Speed also makes it necessary that all decision-making should be avoided; there ought to be no choice of ramps.

7. The function of stowing cars at rest also needs visual expression; advertising considerations alone suggest an unequivocal signaling of function. Urban parking structures need only consist of open decks, platforms at upper levels which, like the street, do no more than provide space. Cost in any case suggests this: one British parking system claims that it can build an open structure at £325 per space but enclosed, the cost is £425-£450. The open decks of multi-storey parking provide a necessary visual contrast to the solidity of the largely glass enclosed office building and the mainly unpierced department store. Their open skeletal sculpture requires to be exploited consciously so that they both are, and appear to be, the termini of the open channels of the city which are used for movement.

8. Parking structures are part of the design of the city in terms of its section, and within them pedestrians are already at upper levels. They should often remain there and be taken through on high level links to shopping floors, raised pedestrian walkways, upper office floors. Such links to other uses are preferably done laterally rather than vertically so as to avoid complicated, and thus expensive, solutions of structure, services and fire separation. Horizontal connections have already been designed in a number of instances; for example the floors of ZCMI's department store in Salt Lake City are linked to parking terraces; both the Fort Worth plan and Louis Kahn's project for Philadelphia develop this notion within a consistent framework.



22, Louis Kahn's drawing is part of his extensive plan for Philadelphia. This, like Victor Gruen's Fort Worth Scheme, reconsiders the whole concept of the town and solves car-storage as part of the total urban plan. Kahn thinks that 'the lower entrances and interchanges, wound-up parking terminals, suggest a new stimulus to unity in urban architecture, one which would find expression from the order of movement'.



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20, 21, William Tabler's project for the Hilton Hotel in San Francisco brings the notion of the motel to the town centre. There are six floors of parking in the middle of the hotel. Guests drive up ramps to park directly outside their bedrooms. These six levels take 350 cars. A further 350 cars are parked by attendants on the seven staggered floors of the basement. This is one of several recent attempts to integrate motor vehicle storage into urban buildings.

21

Abstracted from Great Britain Department of Scientific and Industrial Research Overseas Building Notes, No. 68, June 1960. Pages 1-8.

STUDIES IN COST REDUCTION FOR SMALL DWELLINGS

T. W. Scott

1. Mr. Scott, an architect serving as a Research Officer with the South African National Building Research Institute, first presented this material in a group of papers presented in the 1959 Inter African Housing Conference, Nairobi and in Bulletin No. 17 of the Institute. He discusses the two methods which the architect has of reducing cost:

a. reduction of the area of a dwelling;
b. adoption of lower standards of finish, simpler fittings, etc.

2. Effect of Reducing Floor Area. In South African studies of the cost of small one-floor detached houses, it was found that an increase in total area of 10 per cent would bring about an increase in cost of approximately 4 per cent. The costs of individual items comprising the total may be divided into three groups:

a. Horizontal items (floor, ceilings and roof). The cost of these vary approximately proportionally to the area of the house, i.e., an increase of 10 per cent in total area will bring about a cost increase of 10 per cent.

b. Vertical items (brickwork, plaster, painting on walls, foundation wallings, footings, skirtings, cornices, damp-proof course, gutters, eaves projections, wastage and extra labour at junctions of floors with walls, etc.). Investigation has shown that an overall increase of 10 per cent in area will bring about an increase of approximately 5 per cent to the quantity and consequently the cost of these items.

c. Non-varying items (sanitary fittings, hot-water installation, kitchen fixtures, etc.). These items vary negligibly if at all with the area of the house.

3. In a detached one-floor dwelling with a floor area of about 900 sq. ft. analysis revealed that these three groups of costs contributed to total cost roughly as follows:

a. Horizontal items: 30%;
b. Vertical items: 26%;
c. Non-varying items: 44%

4. If we envisage an increase of 10 per cent in the area of house under consideration the predicted effect would be as follows:

a. Horizontal items would increase 10% (proportionally), which is 30% of the total cost or a net cost increase of 3%.

b. Vertical items which increase in quantity by about 5 per cent with an overall 10 per cent increase, would contribute about 5% of 26%, i.e., 1.3% of the total cost.

c. There would be little or no change in the total cost of non-varying items.

The total combined effect would be to increase the cost of the house about 4.3%.

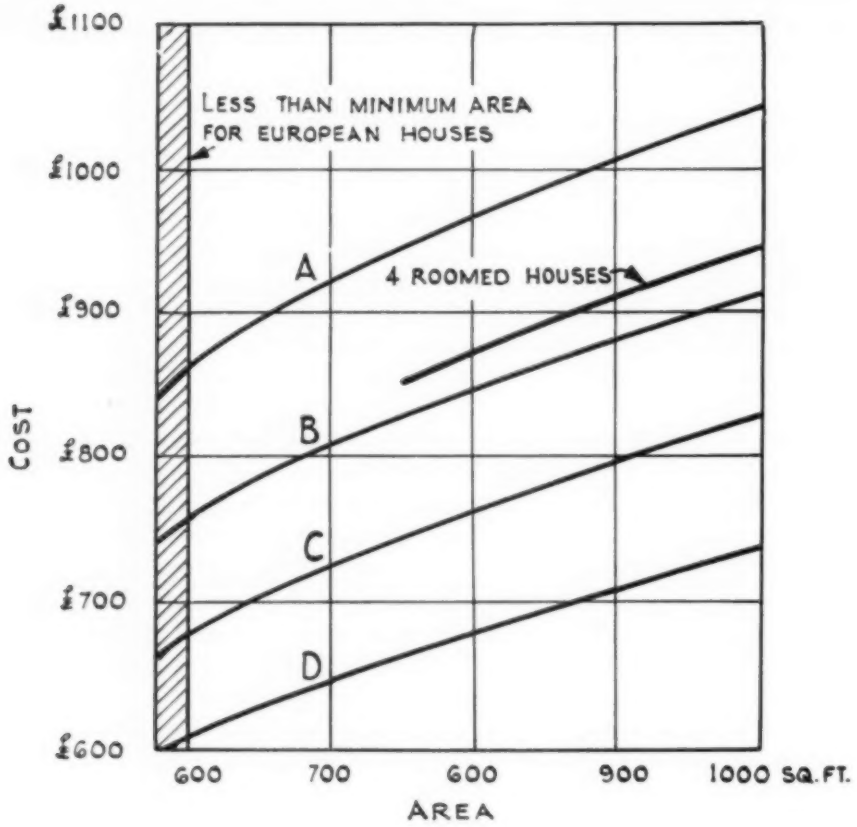
5. Using overall areas as a basis of comparison is perhaps not the most logical procedure, and a more reasonable method would be to compare only net areas, i.e., only the internal areas excluding the superficial areas occupied by walls. It is the comparison of usable areas that is of ultimate importance. When this method is applied it is found that to achieve a 10 per cent increase in the net area it is only necessary to increase the overall area by about 9.4 per cent and this in turn would reduce the resultant cost increase from 4.3 to about 4.0 per cent.

6. Effect of Reducing Standard of Finish. Four different grades of finish and fittings were considered. They are scheduled in Figure 3, which combines in one chart the relationship between cost and area, and standard of finish for a detached house like that illustrated in Figure 1. From the chart, it will be seen that there are alternative ways of designing a house to a fixed sum. It may be simpler and more spacious; or smaller and better finished and fitted.

7. Application to a Particular Design. The problem was to design a house cheap enough for purchase by families in the £300 - 420 annual income ($840 - 1175). It was considered that such a family could not afford more than about £1,250 ($3,500) for site and home; with a 30 year loan this would mean monthly payments of £6 - 7 ($17 - 20), i.e., about one-fifth of earnings. Three possible ways of having the future owner help in the building were studied:

a. Complete self-building by the owner with loans provided by government for the purchase of the plot, materials and such labour as the owner-building requires.

b. The provision of a "basic unit" which would be a house with most of the finishes and fittings excluded.



SCHEDULE OF PRINCIPAL FINISHES AND FITTINGS

A Facebrick externally.
Plaster internally; oil paint in bathroom and kitchen: washable distemper elsewhere.
Burglar bars to windows: 21 oz. glass.
5 F.P.H.C. doors internally with locks and handles.
Woodblock floors to bedrooms and living room. Grano floors to kitchen bathroom & passage.
Asbestos roof 21" wide eaves: fascia:
Fibreboard ceiling.
Bath, basin, low level W.C. stainless steel sink, electric hot water cylinder and stove.
7 lights with wall switches: 3 plugs.
Pelmets with tracks.
Linen cpd. and kitchen worktop.

B As above but:- facebrick plinth: fair-faced stock bwk. bagged and limewashed externally.
Washable distemper in bathroom: limewash elsewhere.
4 doors internally. Asphalt tile floors.
12" eaves. No fascia. 5 lights. 2 plugs.

C As above but:- Fairface stock bwk. externally. Internal walls bagged and limewashed.
Bathroom & kitchen washable distemper.
No burglar bars. 16 oz. glass. Bales catches & drawer handles to doors (int.).
Light switches in passage.
No tracks to pelmets.

D As above but:- Internal walls bagged and limewashed throughout. Grano floors throughout.
No basin. Ceiling switches & enamel shades to lights.
No doors to linen cupboard.
No pelmets.

Fig. 3 Variation of cost with area for different finishes.

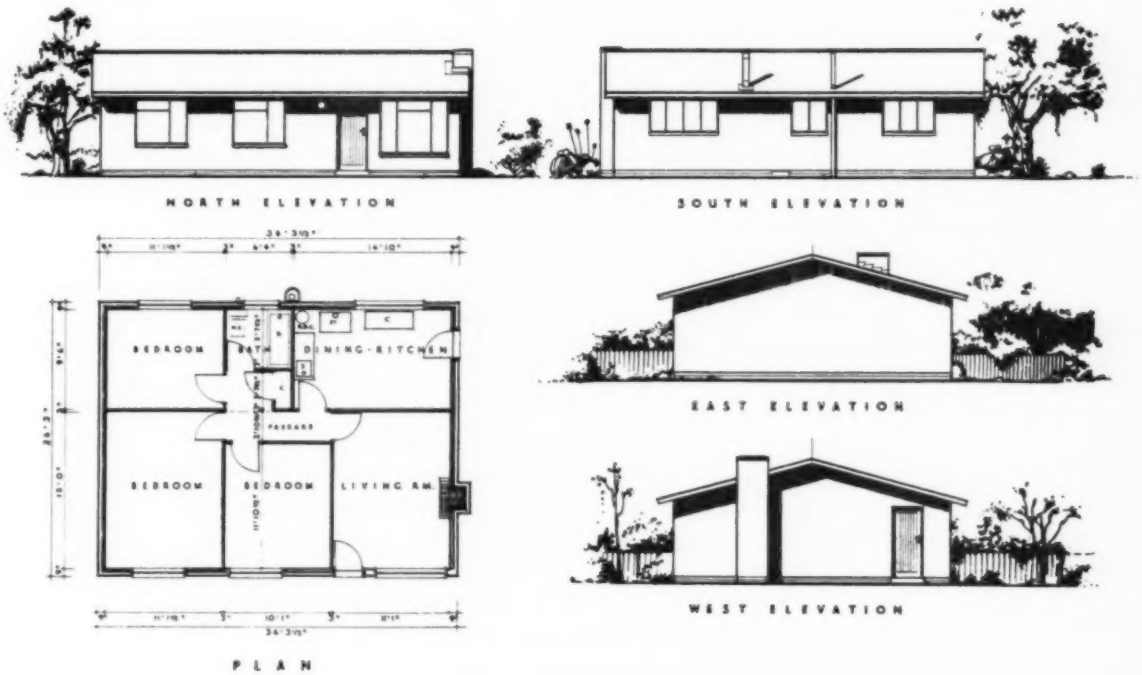


Fig. 1 **One-floor detached house** (type E/900), South Africa; floor area 900 sq. ft.

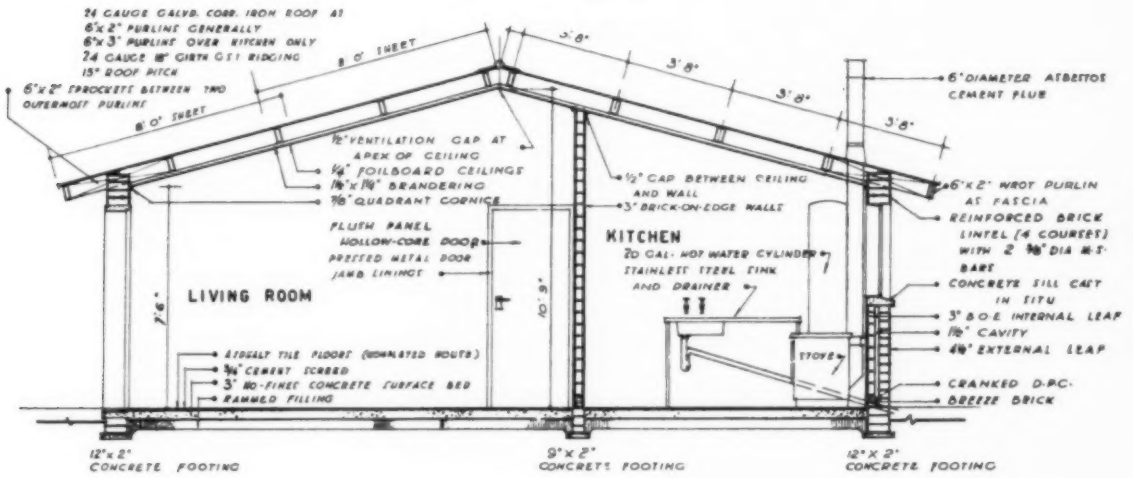


Fig. 5 **Section through house** type E/900.

c. The construction of a "nucleus unit" providing a fully-finished portion of a house containing kitchen, bathroom, living space and one bedroom. The house could be extended.

8. A cost analysis was carried out to compare the cost of the "basic unit" and the complete house. This showed that, although the materials cost about twice as much as the labour in the basic shelter, the unit costs involved in applying the finishes are nearly evenly divided between materials and labour. Because of this it was decided to adopt the "basic unit" approach. The standard of finish, etc., adopted is the lowest shown in Fig. 3; the type of house built is illustrated in Fig. 1.

9. The following principles were among those followed for economy.

a. Design

(1) A simple rectangle because it allows the use of straightforward roofing and it keeps the number of corners to a minimum.

(2) A method was developed for determining the most economic proportions of the rectangle. For the design under consideration it gave a length to breadth ratio of 3.2.

(3) Room shapes were rectangles with no recesses.

(4) The number of separate rooms kept to a minimum.

(5) Where convenient, room dimensions were chosen to limit the wastage of material in the ceilings.

(6) No built-in cupboards were provided.

(7) Although the windows chosen are considerably larger than is needed to satisfy the minimum standard, a point was made of having only one window unit per room and the minimum number of opening sections per unit.

(8) Airbricks were excluded, but a narrow gap about 1/2 inch wide and extending along the highest part of the ceilings was left between the sheets to allow hot air within the rooms to escape into the roof space and then out at the ridging or other openings.

b. Construction

(1) Leveling of the site.

(2) A 12 inch by 2 inch concrete footing was provided to all external walls to provide a level base on which to begin the brickwork.

(3) No-fines concrete was used for the surface beds which were immediately finished off with a 1/2 inch screed of sand and cement.

(4) The internal walls are 3 inch thick and built with hardburnt wire-cut bricks on edge and cement mortar. The external walls are 9 inch wide: 4.5 inch external brick leaf; 3 inch

internal brick-on-edge leaf; 1.5 inch cavity separating the two which are tied together with wire. External walls are not plastered.

(5) Steel door-jamb linings.

(6) The system of roof construction was that of large purlins spanning between cross-walls; 6 inch by 2 inch purlins were used, with short connecting pieces or sprockets to support the external purlin-cum-fascia. Galvanized corrugated steel of 24 gauge was used as the roof cladding. The purlins were spaced so that each of the two rows of 8 foot sheets used to cover one side was supported at its top and bottom edge with one intermediate support, and no cutting of the cladding material was necessary. No gutters or down-pipes were included as they were not considered of major functional importance. The last purlin, which acts as a fascia, provided a strong clean ending to the roof, saving it from the "unfinished" appearance usually associated with houses without gutters. The roof pitch was 15 degrees. It was not considered safe to reduce the pitch beyond this because of the danger of leakage. A gabled roof was chosen in preference to a monopitch; not only was its appearance preferred, but it was also doubtful as to whether a saving could be achieved by using a monopitch.

(7) The ceiling boards were fixed at right-angles to the supporting purlins to simplify construction. Brandering* occurs at not more than 18 inch centres running parallel to the length of the boards (at right-angles to the purlins and continuous across internal walls) and around the edges of each board. No intermediate cross brandering was included. The ceiling material was 1/4 inch thick plaster-board.

(8) The electrical layout was planned in detail beforehand with as little as possible being left to the inventiveness of the electrician on the job. The electrical drawings showed not only the location of lighting and power points, but also the lay-out of the electrical tubing which is carried between the ceilings and the roof. The switches are of the ceiling-mounted pull-cord type. Apart from the fact that the 3 inch brick-on-edge walls could not safely be chased, the use of the pull switches saves the expense of chasing plus the cost of extra tubing and wiring.

* The covering (of joists) with battens for plastering.

Abstracted from South African Council for Scientific and Industrial Research, Research Report 170. 13 Pages. Pretoria, South Africa, July 1960.

A DESIGN CONCEPT FOR HOUSING AGED PEOPLE

D. G. Fairbairn

1. The housing of aged people is a research project sponsored by the National Housing Commission and this report sets out the approach to the problem by the National Building Research Institute.

2. Population Growth and Age Distribution. In dealing with housing for this particular age-group it is well to know the pattern of population over past decades as this gives the pattern into the future. As increasing proportion of aged people in the population will become an important factor when planning the growth of towns.

3. A Housing Group Concept. Few generalizations can be made about the aged. Their basic housing needs are the same as those of the whole community--freedom of movement, independence and privacy. However, a modified physical mental condition and state of health implies special needs for assistance and care. The degree of assistance and care required by an aged person determines the type of housing best suited to him, but it is important not to lose sight of the basic needs which are common to all housing.

4. By their very nature, the basic and special needs are contradictory in terms of housing. Thus an institution answering the needs of assistance and care may curtail freedom of movement, independence and privacy. Again, concepts such as increased employment of the aged and their integration with society at large, are tending to supplant the traditional ideas of compulsory retirement and segregation from the community in the form of large colonies of aged people. This makes the provision of assistance and care, where required, more difficult to control.

5. From observation housing units will fall into three broad categories:

   a. where the household is managed largely by the occupants, who are normally healthy;

   b. where the household is managed largely for the occupants, who are normally healthy;

   c. where the occupants are physically or mentally infirm.

6. A Housing Unit Concept. For households largely maintained by the occupants who are normally healthy, the needs of independence, privacy and freedom of movement are fundamentally answered in a self-contained housing unit. Assistance may well be required for the heavier tasks of house-cleaning and laundering of household linen, and encouragement may be needed in maintaining social activities within and without the housing group, but these services present a problem not directly pertaining to the individual housing unit.

7. For households largely maintained for the occupants who are normally healthy, it is necessary that housekeeping services be centralized to serve a number of occupants, in order to achieve efficiency. A group environment is thus encountered in those areas and spaces common to all occupants. The remaining living activities, with which the occupant does not require assistance, may be expressed in terms of a housing unit whose self-sufficiency is limited. This unit will include space for sleeping, dressing, personal work and leisure activities and maintenance of personal hygiene. Considered then as much a social entity as a more independent housing unit, this unit will have its own entrance terrace or stoep and small garden, and perhaps even postal address. Group circulation areas are conceived as streets, dining room and kitchen as the "restaurant around the corner," a recreation area as the "club down the road."

8. Where occupants are physically or mentally infirm, assistance may be required with the range of normal living activities apart from nursing care and housekeeping services. Further analysis is required in this field of accommodation, which is a finely-blended mixture of housing and hospitalization and involves also the dynamic concept of rehabilitation and not merely care. It will be necessary to analyse this accommodation in its relationship to the role of general hospitals serving a wider community, and the possible need for geriatric departments and day hospitals. The role of mental hospitals in this context will also need investigation.

9. Layout, Location and Size. In upholding the concept of integration with the community, the layout of the housing units must not deny the maximum possible contact of occupants with the neighbourhood. It is also necessary to recognise the reduced scale of the aged person's environment: the geographic horizon shrinks. A smaller-scaled environment of housing units in an open lay-out should be designed then, in terms of surrounding area environment, in order to express as closely as possible the concept of the aged as an integral part of the community. The site lay-out becomes a short essay in town-planning with major and minor pedestrian walkways corresponding to neighbourhood and precinct roads and with private access paths to individual housing units. An urban-type atmosphere is introduced which more closely identifies the housing units with the community and tends to overcome visual differences between the housing group and surrounding environment.

10. The three types of housing units for the aged should be carefully related so that the change from one state of living to another is not marked. When occupants maintaining their own household find this becomes a burden, their familiarity with a more

dependent state of living (type b) would make a change more easily acceptable. Housing units for those normally healthy should therefore be closely related and, in pursuance of this aim, any recreational and club facilities should serve equally the needs of both states of living.

11. The relationship of housing types a and b with that for the physically and mentally infirm (type c), needs to be more carefully considered. Although the environmental change should not be marked, there is evidence of some incompatibility between sick and healthier aged people. The site layout should, however, encourage informal access between the units in order to promote familiarity of conditions for the healthy and a measure of social contact for the sick.

12. The lessening of sensory acuities and physical abilities and the general decline in social participation found among the aged, must be met by encouraging normal community interactions to take place as easily and naturally as possible. Thus the location of a site for the housing group must be carefully related to the range of community facilities and amenities and public transportation routes.

13. The surrounding environment should be of a similar density. This will avoid visual isolation of the comparatively high density of a housing group for aged people when part of a lower density environment. The proximity of comparatively high concentrations of people in buildings such as schools and creches would also be instrumental in maintaining a rounded social environment.

14. Sociological Factors. A survey of housing preferences must be under the control of sociologists if it is to be of value, as questionnaires and interviews will then be carefully worded and conducted so that information gained is completely relevant to the planning problems involved. Suitable personal and background material may be arranged as follows:

a. Age or age group (60-64, 65-69, etc., to 90+).
b. Sex.
c. Marital status.
d. State of health:
    (1) normally healthy and able to manage own household,
    (2) normally healthy, but not able or willing to manage own household,
    (3) physically or mentally infirm, or requiring continuous nursing or care.
e. Present living arrangement:
    (1) living independently, with or without spouse,
    (2) with relatives,
    (3) with friends,
    (4) in hotel or boarding house or lodging house,
    (5) in special housing for the aged.

f. Reasons for living in present housing arrangement.
g. Satisfaction or otherwise with present housing.
h. Income:
    (1) group.
    (2) source.

15. In terms of the housing group concept described, more than one type of housing unit must be considered. Therefore an initial correlation between personal background material and preference for one or another of the housing types is desirable. In outline description of housing units envisaged must be given. Information for guidance in detailed planning of the various housing units must be obtained from questions involved a choice of equally weighted planning features. A suitable list of items for a questionnaire may be arranged as shown below:

a. Housing unit 1(a). Double occupancy housing units consisting of living room, bedroom, dining-kitchen including fittings and equipment and bathroom. House-cleaning service is provided as well as a nursing service for temporary sickness.
    (1) Preference for —
        (a) covered stoep,
        (b) entrance hall,
        (c) fireplace in living room.
    (2) Preference for —
        (a) built-in cupboard provided in bedroom,
        (b) use of wardrobe, assuming space permits only one or the other.
    (3) Preference for —
        (a) kitchen large enough to include dining, with small living room,
        (b) combined living-dining room with small kitchen.
    (4) If laundry wash troughs provided outside in a screened-off drying yard, shared between two housing units —
        (a) able and willing to do personal laundry only,
        (b) able and willing to do personal and household laundry,
        (c) prefer to make use of a laundry service if provided.
    (5) If small garden space provided in front of housing unit —
        (a) willing to maintain garden,
        (b) prefer garden to be maintained by others.

b. Housing unit 1(b). Single occupancy "one-room" flatlets including cupboards and kitchen equipment, and bathroom. House-cleaning service is provided as well as a nursing service for temporary sickness.
    (1) Preference for —
        (a) shared bathroom between each two flatlets with interconnecting doors,
        (b) communal bathrooms at end of a corridor.

(2) Preference for —
  (a) covered stoep in front of flatlet,
  (b) private bathroom.

(3) If shared laundry wash troughs provided outside in a screened-off drying yard —
  (a) able and willing to do personal laundry only,
  (b) able and willing to do personal and household laundry,
  (c) prefer to make use of laundry service if provided.

(4) If small garden space provided in front of flatlet —
  (a) willing to maintain garden,
  (b) prefer garden to be maintained by others.

c. Housing unit 1(c). This consists of single-occupancy bed-sitting rooms with bathrooms, of limited number (four is suggested) sharing a common living room dining space and kitchen, in a family-like arrangement where the household is managed by the occupants jointly. House-cleaning service is provided as well as a nursing service for temporary sickness.

(1) Preference for —
  (a) shared bathroom between each two rooms with inter-connecting doors,
  (b) one bathroom and W.C. shared among the four occupants.

(2) Preference for —
  (a) covered stoep,
  (b) private bathroom for each occupant.

(3) If laundry wash troughs provided —
  (a) able and willing to do personal laundry only,
  (b) able and willing to personal and household laundry,
  (c) prefer to make use of laundry service if provided.

(4) If small garden space provided in front of housing unit --
  (a) willing to maintain garden,
  (b) prefer garden to be maintained by others.

d. Housing unit 2. Bed-sitting rooms with bathrooms for single occupancy (or double occupancy suites if required by couples) with common dining room and recreation/work rooms. All services are provided, including nursing service for temporary sickness.

(1) Preference for —
  (a) shared bathroom between each two bed-sitting rooms, with interconnecting doors.
  (b) communal bathrooms at end of corridor.

(2) Preference for —
  (a) covered stoep in front of bed-sitting room,
  (b) private bathroom,
  (c) small recess with sink and cupboard for tea-making.

(3) What are considered the primary functions of a recreation room —
   (a) reading and conversation,
   (b) hobby activities such as woodwork and sewing.

(4) Is it considered —
   (a) necessary,
   (b) desirable,
   (c) undesirable

to have private entrances to bed-sitting rooms apart from internal access from a corridor.

(5) Assuming private entrances, with or without covered stoeps, if a small garden space is provided in front of bed-sitting room —
   (a) willing to maintain garden,
   (b) prefer garden to be maintained by others.

(6) Preference for —
   (a) ironing alcove for each group of rooms,
   (b) tea-making alcove for each group of rooms.

16. Additional items of a general nature relating to all housing units may be prepared by the sociologist. This material may include the pattern of social mixing, the desire to be near relatives, leisure time habits, etc.

17. Economic Factors. As a proportionately increasing aged population becomes dependent on a proportionately decreasing working population, the economy of a country will be adversely affected. It is well to have an understanding of the economic factors in present housing arrangements, so that measures may be planned to mitigate the increasing effect of the problem. Subsidies from the State are given in three ways: firstly, a pension; secondly, housing is built from subsidized loans; thirdly, its maintenance is subsidized.

18. Viewed as an economic problem, the task of housing an increasing proportion of aged people may be met by directing attention to the reduction of capital costs and running expenses. Research has already been done in reducing capital costs in the general housing field in South Africa. It is considered that the application and extension of the principles evolved should achieve significant results. However, it does not seem as if similar results can be expected in the reduction of running expenses.

19. In the consideration of economic factors, it was not possible to avoid reflecting on an aspect outside the scope of this paper, but indirectly connected with the problem. This is the possibility of increasing revenue to meet expenses. There appear to be two ways of achieving this, other than by further subsidization. First, revenue will be supplemented if occupants are able to contribute more realistically toward their maintenance and, in this regard, the encouragement of increased employment of the aged is an obvious factor. Second, the economic depression which is prevalent in old age and inhibits the esablishment of economically maintained housing may be mitigated by a form of national insurance.

Abstracted from "Selected Bibliography on Methods of Projecting the School-Age Population, The Economically Active Population, The Urban and Rural Populations and the Number and Size of Households." United Nations Seminar on Evaluation and Utilization of Population Census data in Asia and the Far East. 20 June-8 July 1960.

SELECTED BIBLIOGRAPHY ON METHODS OF PROJECTING THE NUMBER AND SIZE OF HOUSEHOLDS

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2. Glick, P.C., AMERICAN FAMILIES. New York, John Wiley and Sons, 1957, pages 164-191. Period covered by the projection: 1954-1975. The ratio of heads of households to the numbers of persons in each age-group is an essential feature of the method used. The study of past trends and their extrapolation by certain factors such as the number of households per 100 adults, the proportion of married couples not constituting separate households and the proportion of married women among all women over 14 years of age, has been of great assistance in making this method more reliable. The author has made very detailed projections. He distinguishes between "primary families household" and "primary individuals households" and shows the trend of the average-sized household. He has tried to make separate projections for urban and rural households. He has also estimated the future number of families on the basis of various assumptions. Thus, in calculating the number of marriages up to 1975, he took as a basis the marriage rates for the period 1920-1939 and those for the period 1950-1953. The methods of calculation are set out in detail in an annex.

3. Henry, L., STRUCTURE DE LA POPULATION ET BESOINS DE LOGEMENTS (Population structure and housing needs). POPULATION (Paris), Vol. IV, No. 3, 1949, pages 433-446. PERSPECTIVES RELATIVES AUX BESOINS DE LOGEMENTS (Forecasts of housing needs). POPULATION (Paris), Vol. V, No. 3, 1950, pages 493-512. Period covered by the projection: 1950-1980. These two articles are devoted to the estimating of housing needs on the basis of population. Various factors, including structure by age and by marital status, internal migration and drop in the mortality rate, have been taken into consideration. The author purposes a simplified scale for the evaluation of current and future housing needs. He also shows that the ratio of housing needs to the total number of married, widowed and divorced persons

has been constant over a long period. Moreover, he makes a projection of housing needs by size, a point of view which is seldom considered.

4. Pressat, R., UN ESSAI DE PERSPECTIVES DE MEANAGES (Attempt to forecast households). International Population Conference (Vienna), 1959. No. 39. Working Committee, 1959. 10 pages. Period covered by the projection: 1957-1967. The author has emphasized the complexity of the problem. The number of households is not solely a result of demographic and sociological factors, but also of economic factors such as the number of dwellings. In order to estimate the future number of households, the author first makes a forecast, by sex and age, of the entire population classified as married and unmarried. He then makes use of the ratio of heads of households to the number of persons in each group thus defined, these ratios being calculated from the data of the 1954 census and maintained at a constant level.

5. United Nations. Economic Commission for Europe. EUROPEAN HOUSING TRENDS AND POLICIES IN 1957. E/ECE/329, Geneva, 1958, pages 65-66. This publication gives an account of the various methods used by European Governments to estimate future housing needs. In Sweden, a Royal Commission made a forecast of the number of households up to the year 1965 adopting the following method:

a. A forecast was made of the total population according to sex, age and civil status. Two assumptions were made:
   (1) the proportion of married persons in each age-group would remain unchanged,
   (2) the proportion of married persons in each age-group would increase.

b. The number of households was then calculated on the basis of the percentage of heads of households within each age-group, according to sex, age and marital status. These ratios were assumed in one assumption to be constant and in the other to be increasing.

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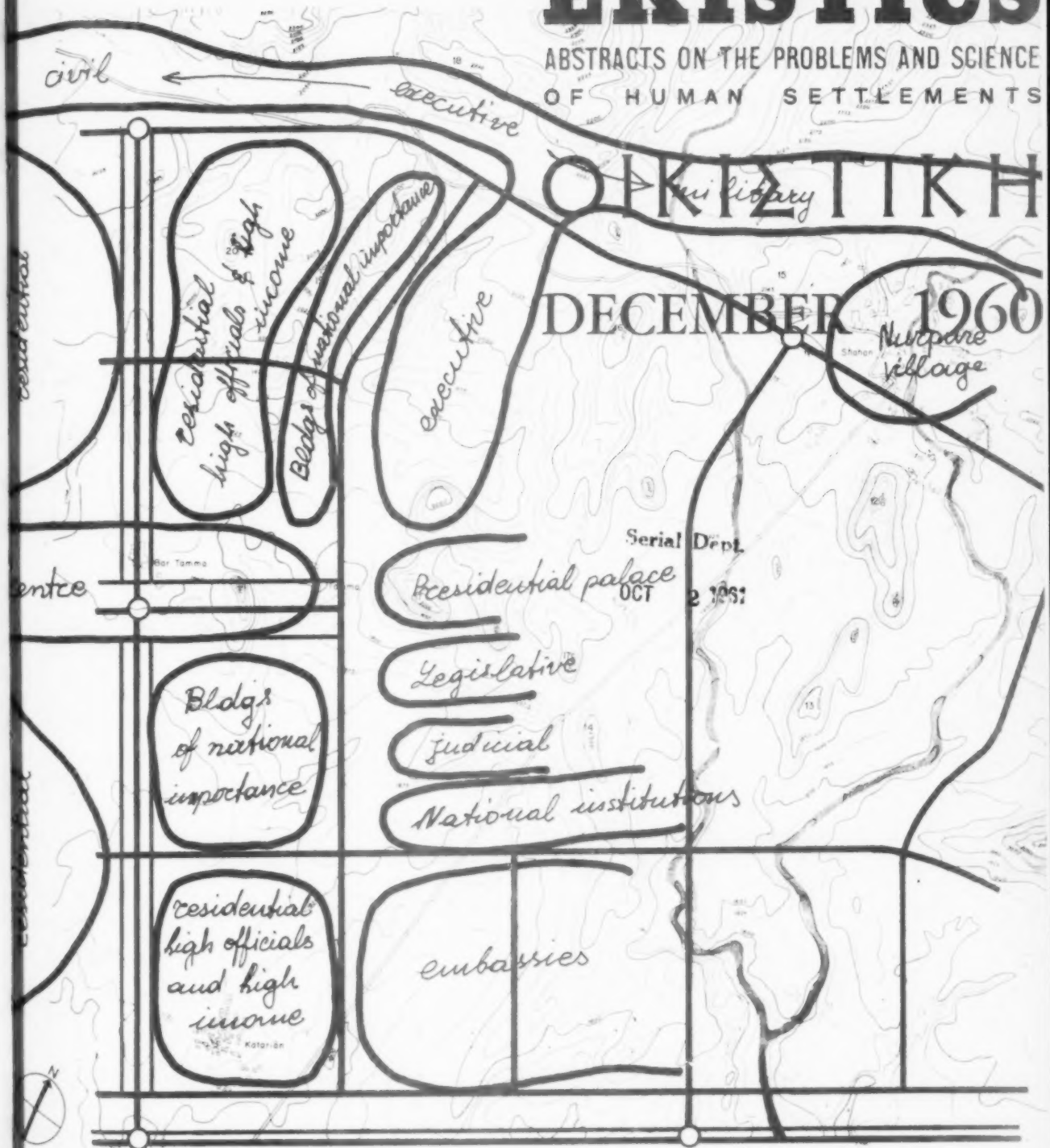

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